SHARP®

Version 3.1
Produced in Sep. 2001

Ladder logic programmning software

Model name
JW-100SP

Instruction Manual

Thank you for purchasing the ladder logic programming software JW-100SP.
Please read the instruction manual carefully in order to apply the software correctly by understanding its functions and operations.
Please keep this instruction manual near you. It will certainly help you when you encounter problems.

Note

・This manual describes the version 5.10 of JW-100SP

Note

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Ladder logic programming software JW-100SP

■ Instruction Manual

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Chapter 1 Introduction

JW-100SP is a ladder logic programming software that is capable of creating a program by ladder and mnemonic of Sharp New Satellite JW Series PC (programmable controller), as well as setting up data memory, system memory, symbol & comment, and the parameter.
Once created program or various data can be saved as file, or saved as document after having it printed.
By communicating with the JW Series PC, this software is capable of transferring the program or various data as well as executing the monitor and debug functions.
This software works on Windows 95/98/Me or any other personal computer whose operating system is Windows NT.

1-1 Features

(1) Variety of multi-window systems

- This software features independent windows for each item, like program, system memory or data memory, so that you can change instantly to the desired window for editing.
- Several windows for one program can be opened at the same time so that you can easily create the program by referring to other sections of the program.
- Since the list of contact-use(Data List), multipoints monitor and library are independent windows and that they are most likely observed along the program, you will be able to refer and confirm as many items as possible.

(2) Variety of program editing functions

- By using the full screen editor, the ladder editing is capable of creating and modifying the program at all times.
- There are variety of useful editing functions such as symbol input (like the relay number), cut/copy/paste functions (by using the mouse), enlarging and contracting the ladder drawing, adding line comment, jump and undo.
- Several methods of ladder inputs are available by using the mouse so that you can adjust the input method at your preference. You can also execute functions by keyboard.
- Being aware of a particular application instruction's number is not necessary since the available list will help you select the input of application instruction.
- Sophisticated library functions allow you to create the similar circuit easily.

(3) Monitoring several windows at the same time

- You can monitor a number of windows at the same time. By registering the desired part in the multipoints monitor window, you can use the monitor function more efficiently.

(4) Variety of parameter setups by property sheet form

- You can easily setup system memory and parameter by selecting the item from the list without worrying about system memory, parameter address and data content. For this reason, the instruction manual of the product becomes compact, in concrete and simple fashion, to lessen or avoid any setup errors.

(5) Variety of printing functions

- The software features an editor exclusively for creating header and footer so that you can freely create the desired screen.
- There are useful functions such as cross reference, with symbol, with comment, etc.

(6) JW-50SP Upward Interchangeability

- Programs and data that were created under ladder software JW-50SP (IBM-PC versions) can be used in this software. Also programs and data created by this software can be saved as file that can be read by JW-50SP software.

1-2 Compatible PC Model

The following JW series PC models are compatible to this software:

P C	Control Module (CPU)
JW10	JW-1324K、JW-1424K、JW-1624K JW-1342K、JW-1442K、JW-1642K
JW20,JW20H	JW-21CU、JW-22CU
JW30H	JW-31CUH、JW-32CUH、JW-33CUH JW-31CUH1、JW-32CUH1、JW-32CUM1 JW-33CUH1、JW-33CUH2、JW-33CUH3
JW50/70/100	JW-50CU、JW-70CU、JW-100CU
JW50H/70H/100H	JW-50CUH、JW-70CUH、JW-100CUH
J-board	Z-311J、Z-312J、Z-313J、Z-511J、Z-512J
VME built-in controller	JW-32CV1、JW-32CV2
W100	ZW-1K0CU、ZW-1K1CU ZW-1K2CU、ZW-1K3CU
W70H/100H	ZW-70CU、ZW-1HCU
W16/51	ZW-160CU ZW-501CU、ZW-501CU2、ZW-501CU3

・You can connect your programmable controller to other optional modules than above.
・For the connection between the personal computer and the programmable controller, refer to the next page.
・For the settings of each model, refer to page 5-5 and 5-46.

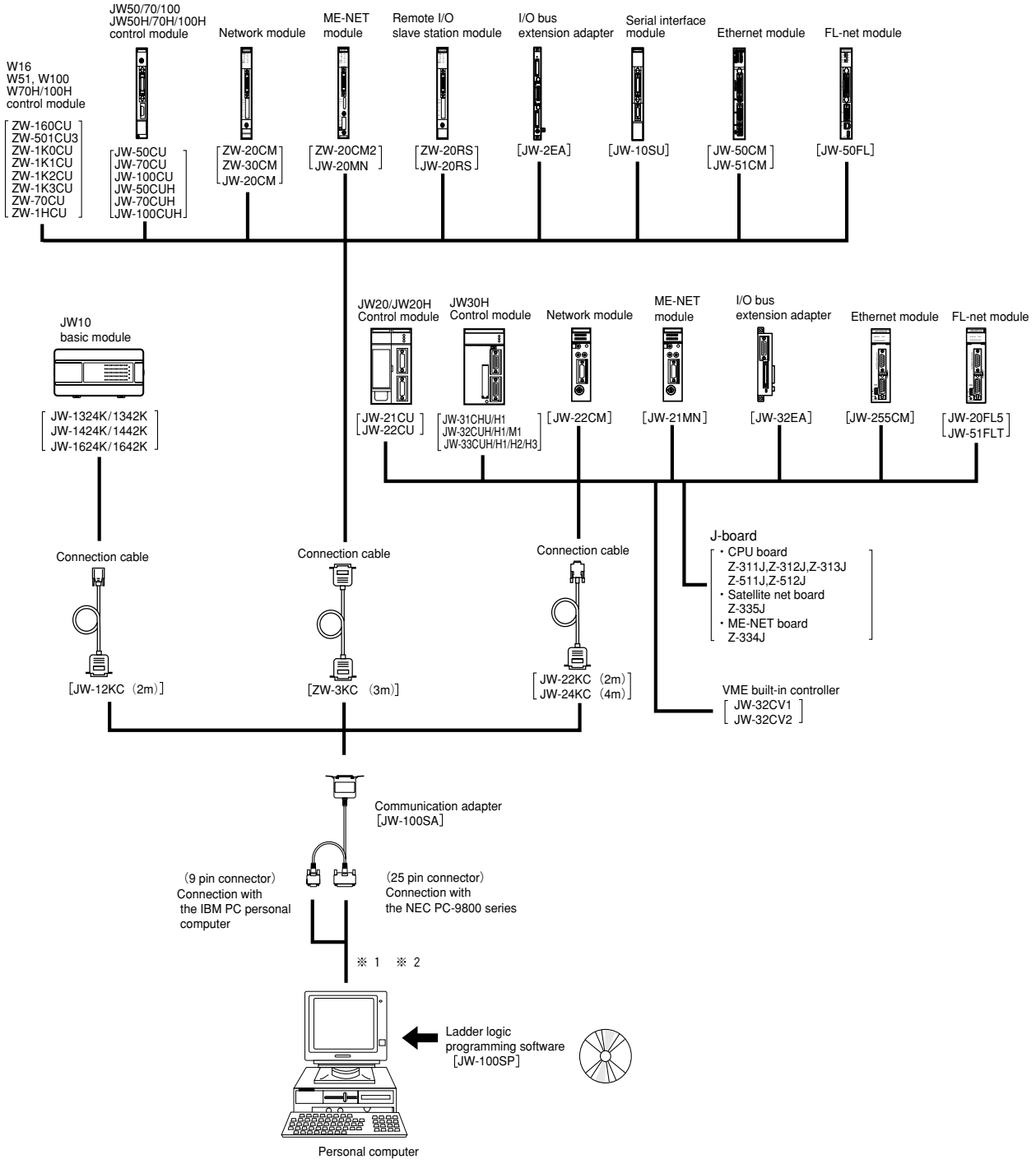
1-3 System Requirements

This software can be used by any personal computers that satisfy the following operating environments:

Item	System Requirements
Personal computer	IBM PC personal computer or NEC PC-9800 series
CPU	More than 90MHz of Pentium (More than 200MHz of Pentium recommended)
Operating system	Microsoft Windows 95/98/Me Microsoft Windows NT4.0
Memory	More than 32M bytes (more than 64M bytes recommended)
Hard disk	30M bytes of the empty area
Monitor	More than SVGA (800×600 dots of the resolution, more than16 color)
CD-ROM drive	One model
RS-232C port	More than 1 port
Mouse	Microsoft mouse or interchangeable pointing devise (operations only by the keyboard are possible)
Printer	Printer that can be used under Windows 95/98/Me/NT environment,when printing the ladder drawing, for example

1-4 Connection between the Personal Computer and the PC

■ Basic System Organization

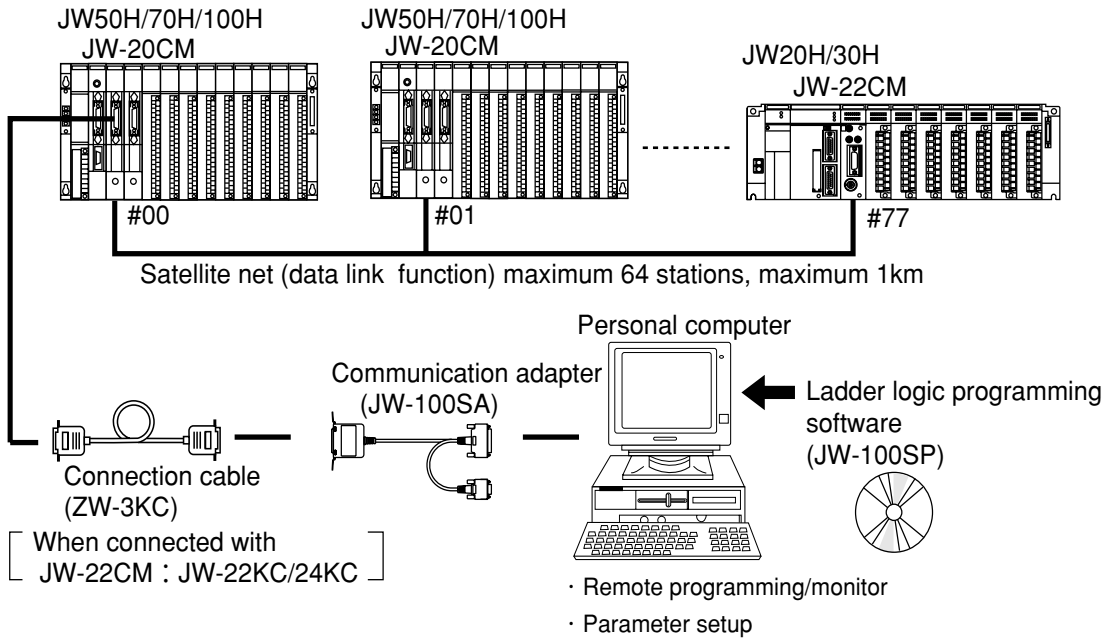


※ 1 You can only connect one IBM PC personal computer or one NEC PC-9800 series to the connector of your personal computer (You cannot connect both 9 pin connector of JW-100SA and 25 pin connector at the same time)

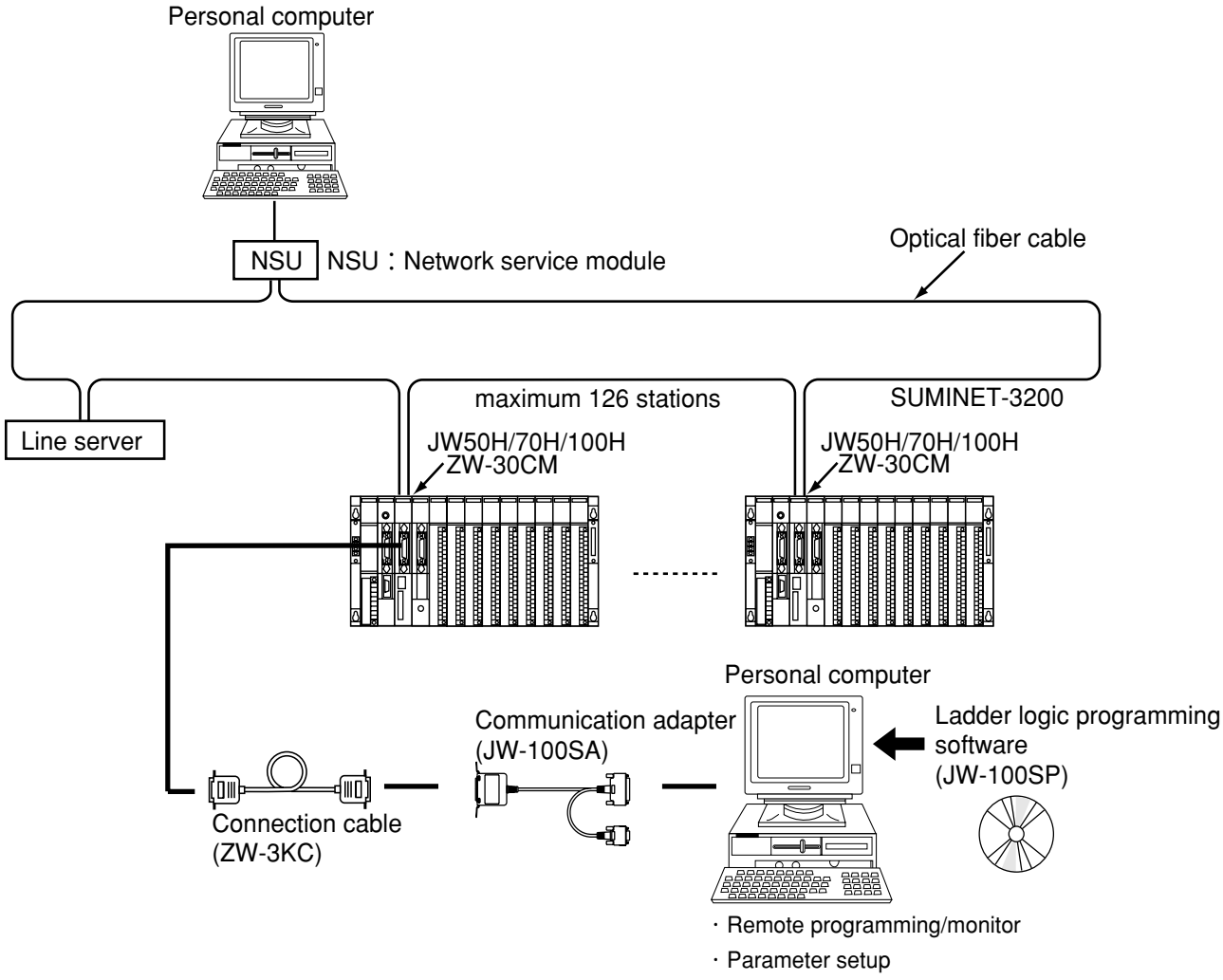
※ 2 Since the personal computer has the RS-232C port (half-pitched 14 pin), you need a conversion cable to match the D-sub 25 pin (female) when connecting with the NEC PC9800 series.

■ System Organization Using Communication

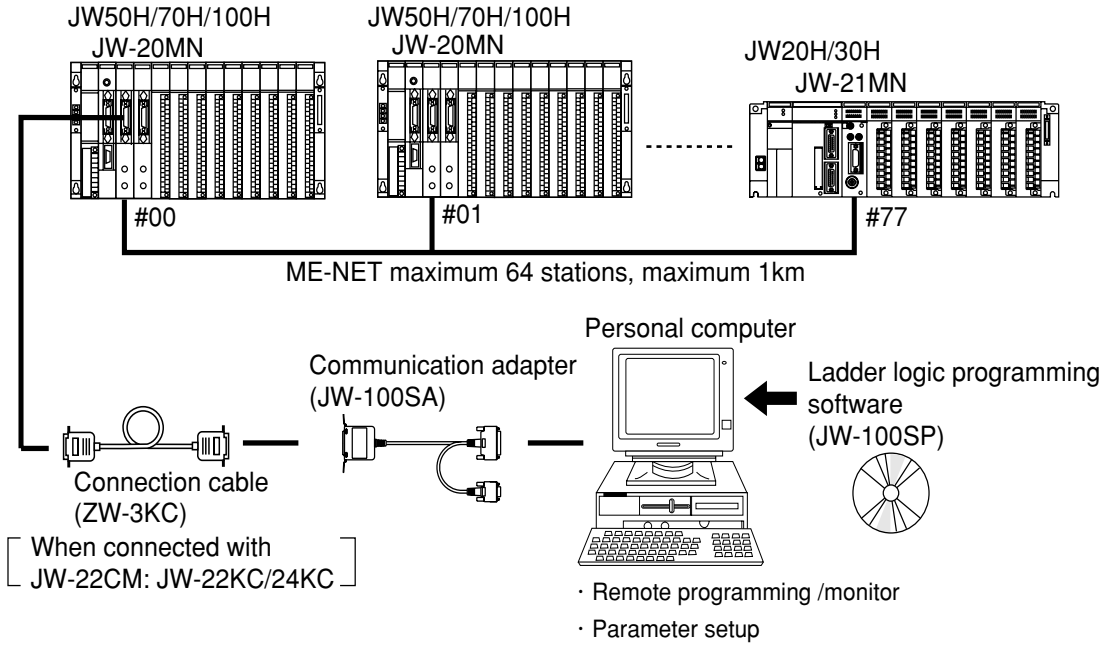
(1) Network connection (Standard：Satellite net)



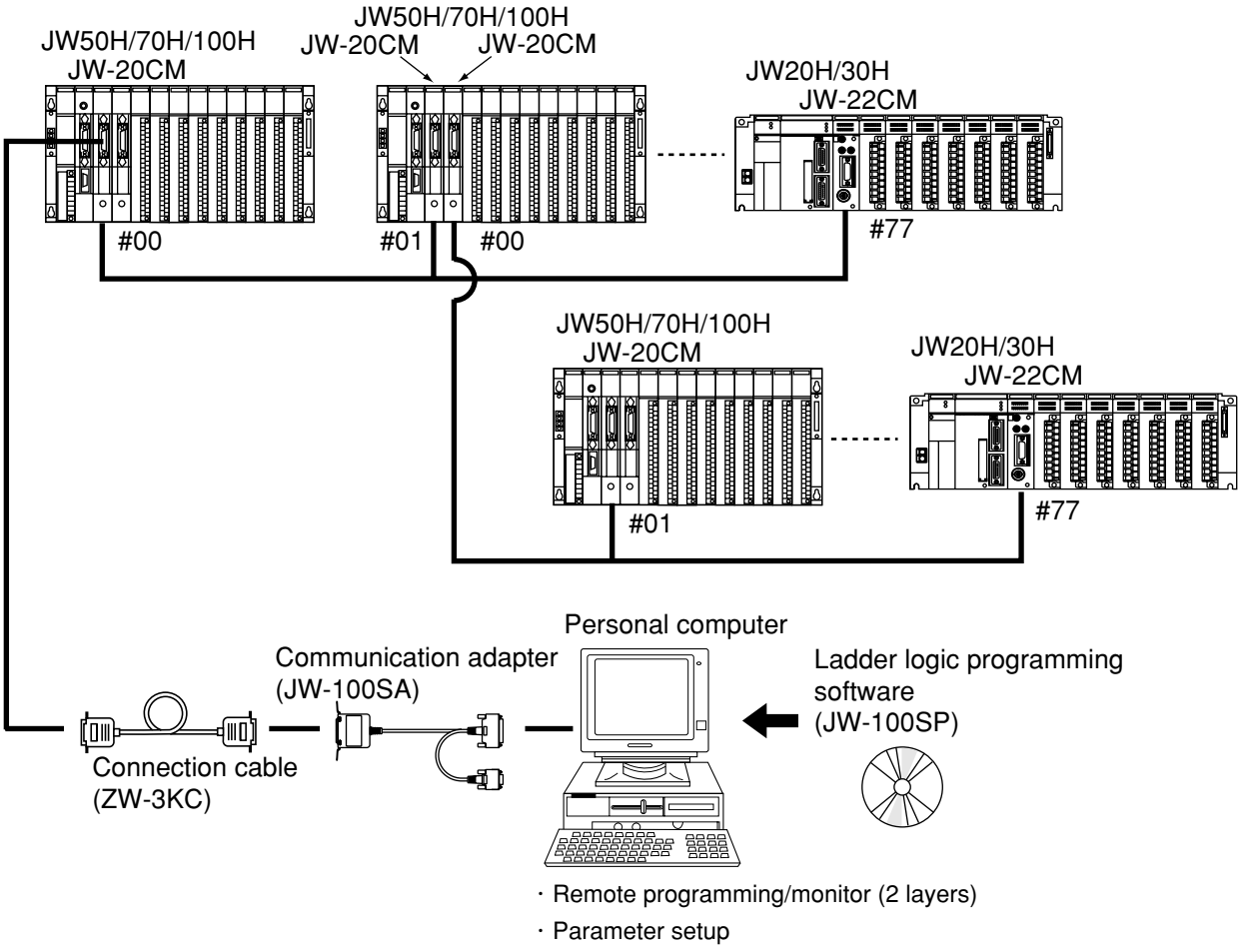
(2) Network connection (Standard：SUMINET-3200)



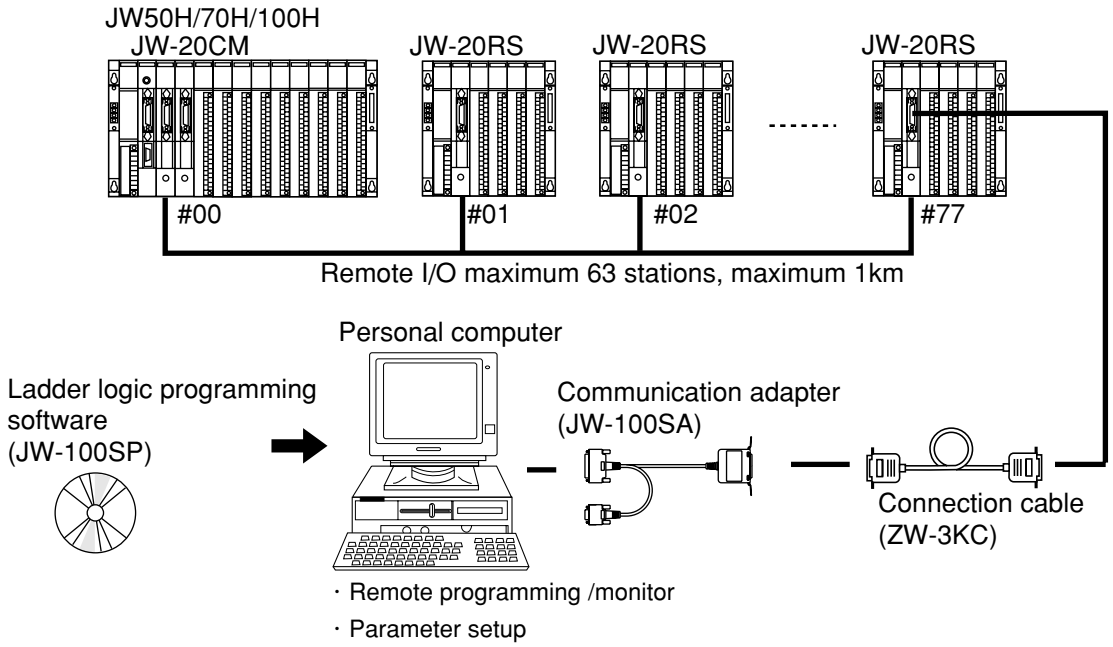
(3) Network connection (Standard：ME-NET)



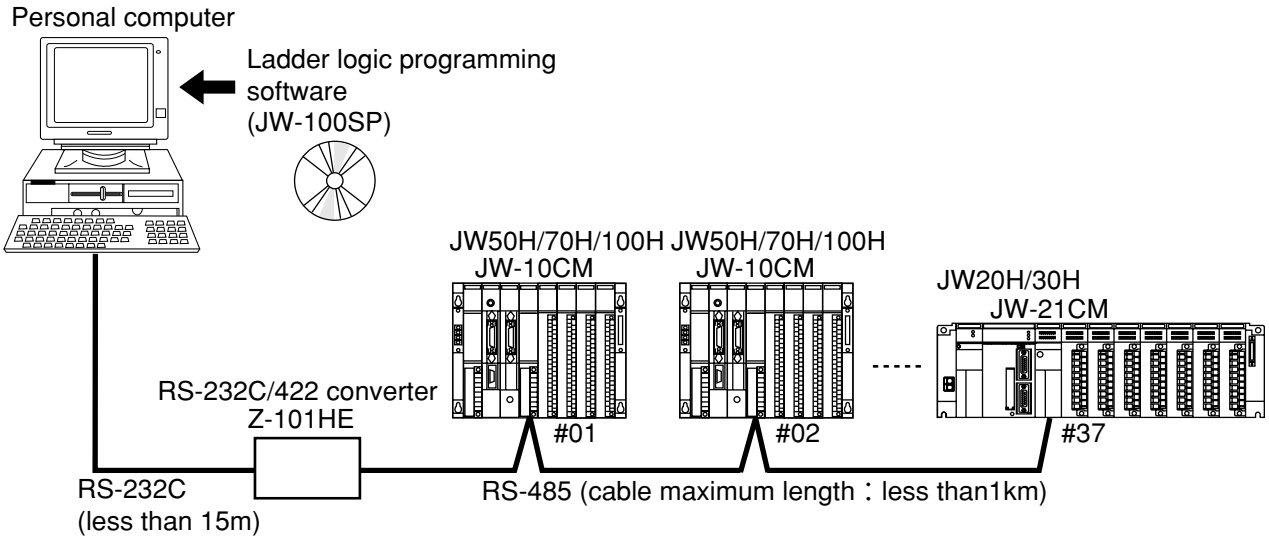
(4) Network connection (Expansion)



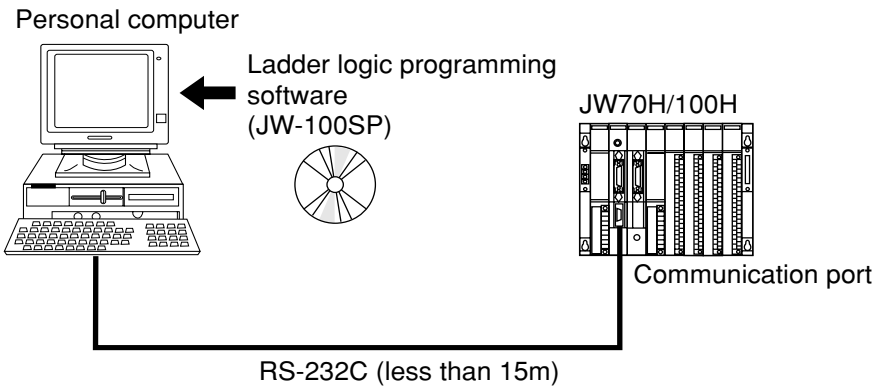
(5) Remote I/O connection



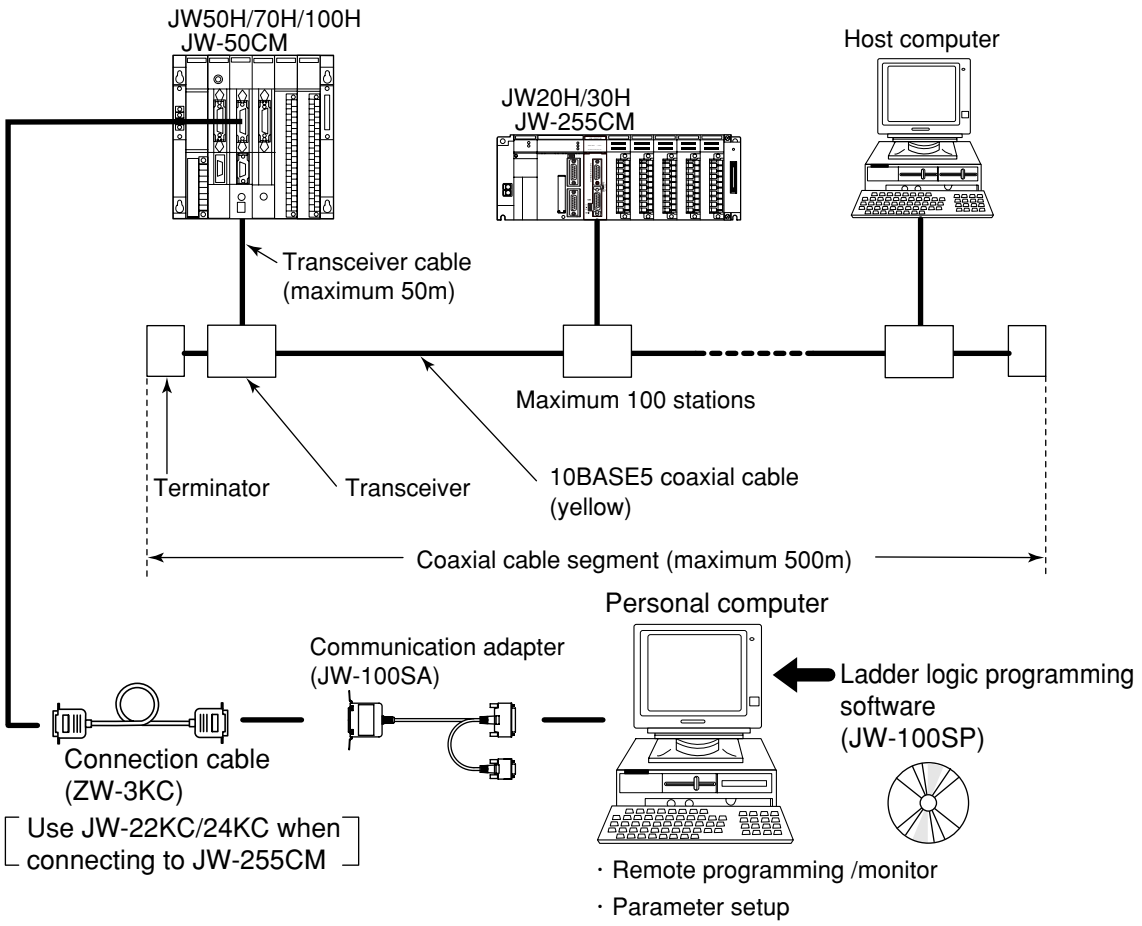
(6) Computer link connection (RS-485 connection)



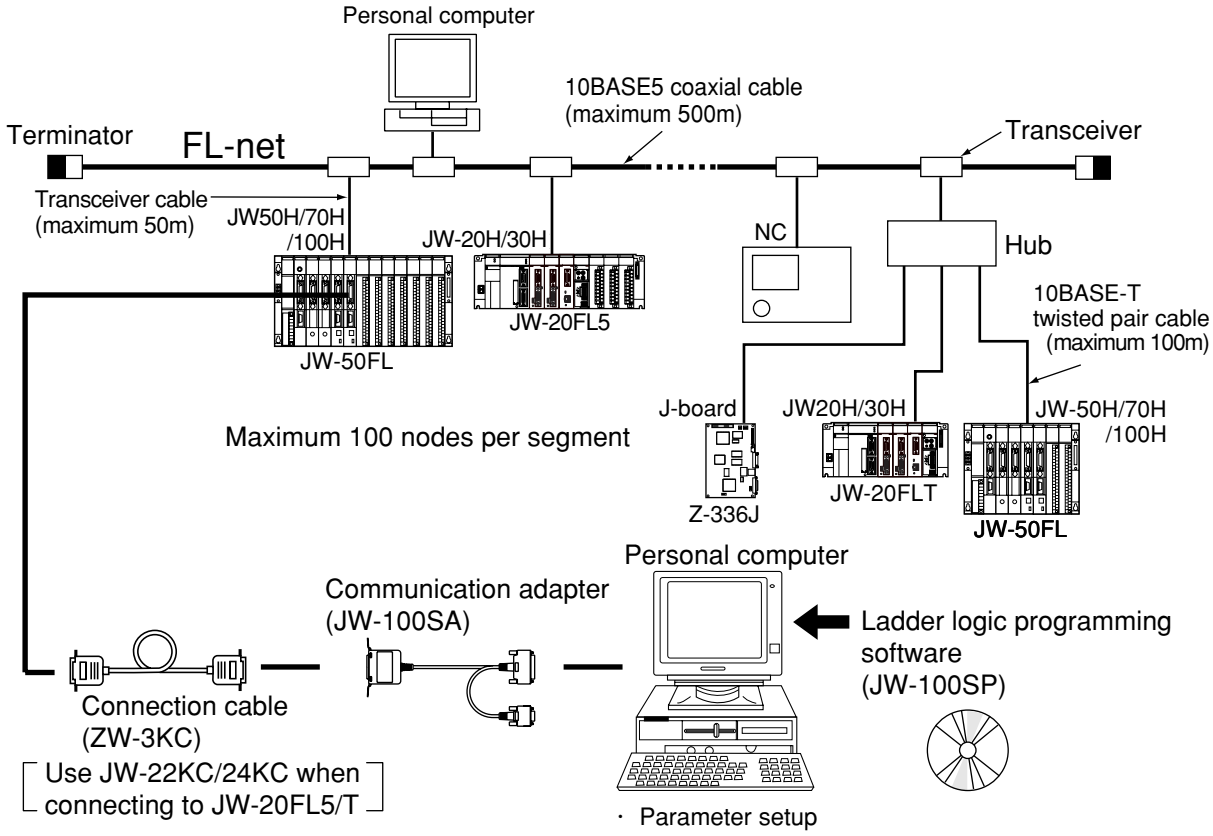
(7) Computer link connection (RS-232C connection)



(8) Ethernet connection



(9) L-net connection

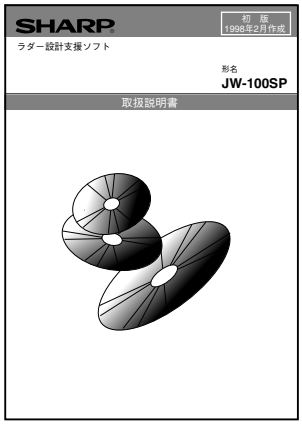


1-5 Product Organization

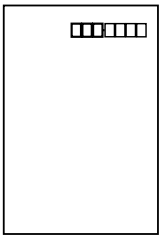
■ Ladder Logic Programming Software (JW-100SP)

CD-ROM ····· 1 (quantity)
Instruction manual ····· 1 (quantity)
Registration card ····· 1 (quantity)

CD-ROM



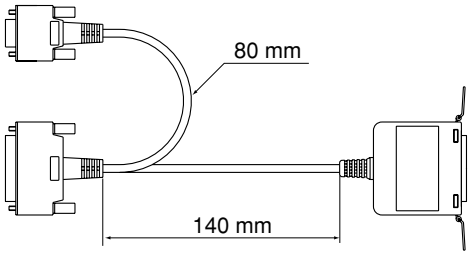
Instruction manual
(Japanese)



Registration card

■ Communication Adapter (JW-100SA)

Communication adapter ····· 1 (quantity)



1-6 Caution

■ On-line Caution upon Using the Monitor

When the personal computer and the PC are connected, use the on-line monitor after transferring the PC program to the personal computer, or after transferring the personal computer program to the PC. If you don't transfer the programs, you won't be able to have the correct calculation at the ladder monitor/ mnemonic monitor since the program of PC and personal computer may not be the same.

1-7 Conventions Used in This Manual

■ Display of Menu, Command, Dialog Box

Display	Meaning
[ ]	· Displayhe menu name, command name and button name in [ ]. Example) [File] menu, [New] command, [OK] button · Display the the name of the title bar of the dialog box displayed in [ ]. Example) [Open File] dialog box
[ ] - [ ]	· Show the layers of menu,command. Example) select [File]-[New]. (It means that [New] command is selected from the [file] menu) Example) select [PC]-[PC Transfer]-[Write]. (It means that [PC Transfer] menu is selected from the [PC] menu, and in addition, it means to select the [Write] command)

■ Display of Mouse Operations

Display	Meaning
Click	· Press the mouse button once and release the button right after. · Among the two buttons of the mouse, when only "click" is displayed, it is to press the left button, and when "right click" is displayed, it means to press the right button.
Double click	· Means to press the left button of the mouse quickly twice.
Drag	· Means to keep pressing the left button, then release the button after moving it to the desired position.

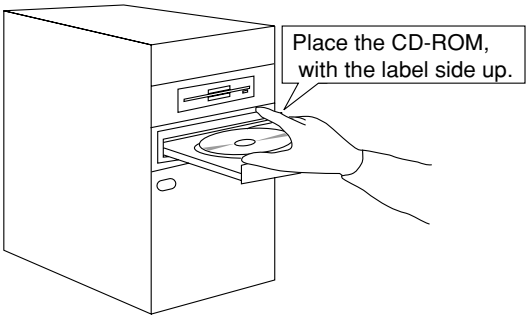
■ Display of Key Operations

Display	Meaning
[ ]	· Keys are displayed in [ ]. Example) [Enter] key, [S] key
[ ] + [ ]	· [+] means to press a number of keys at the same time. Example) [Ctrl]＋[S] key
Directional key	· The general name of [→] [←] [↑] [↓] keys

Chapter 2 Setup

"Setup"means the condition of the application/software that is ready to be operated by installing it into to the personal computer. In this chapter, the setup order of the ladder logic programming software · JW-100SP is explained.
JW-100SP operates under Windows 95/98/Me/NT, but the setup order of this software is explained for Windows 98 environment.

1. Start-up Windows 98, and place the JW-100SP CD-ROM into the CD-ROM drive of the personal computer.

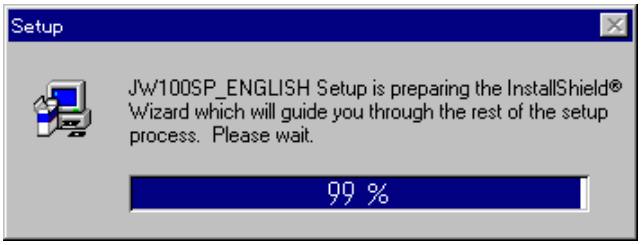


2. Open [My Computer] on the desktop by double clicking the icon.

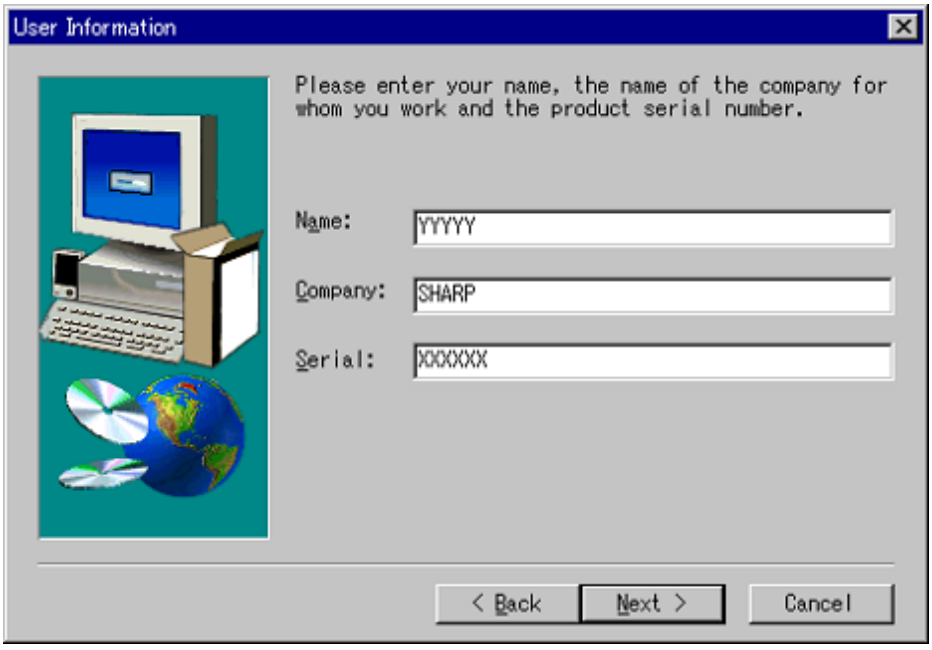
3. Open the CD-ROM drive by double clicking the icon.

4. Double click [setup.exe].

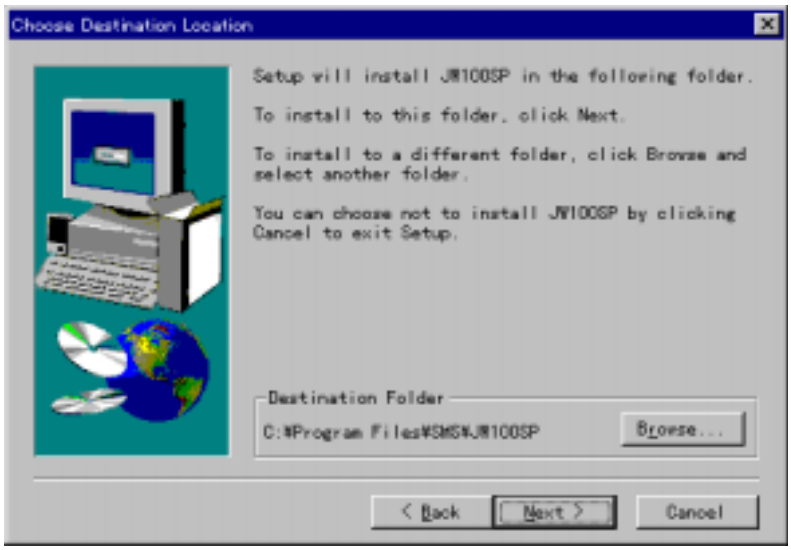
The setup program will start-up, and the next dialog box will be displayed.


Setup
JW100SP_ENGLISH Setup is preparing the InstallShield® Wizard which will guide you through the rest of the setup process. Please wait.
99 %

When the setup preparation is completed, the next dialog box will be displayed.

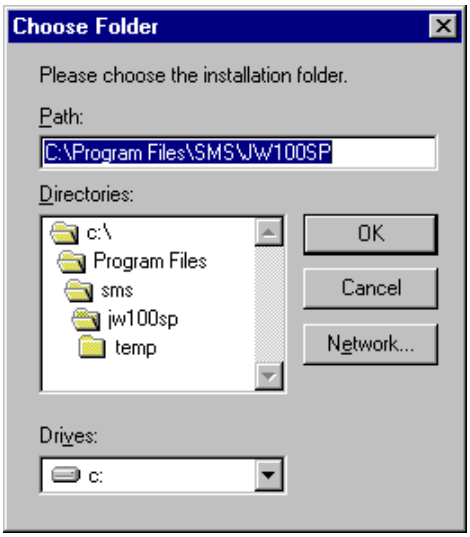


5. Input your [Name] and [Company], and click [Next] button.
   The next dialog box will be displayed.

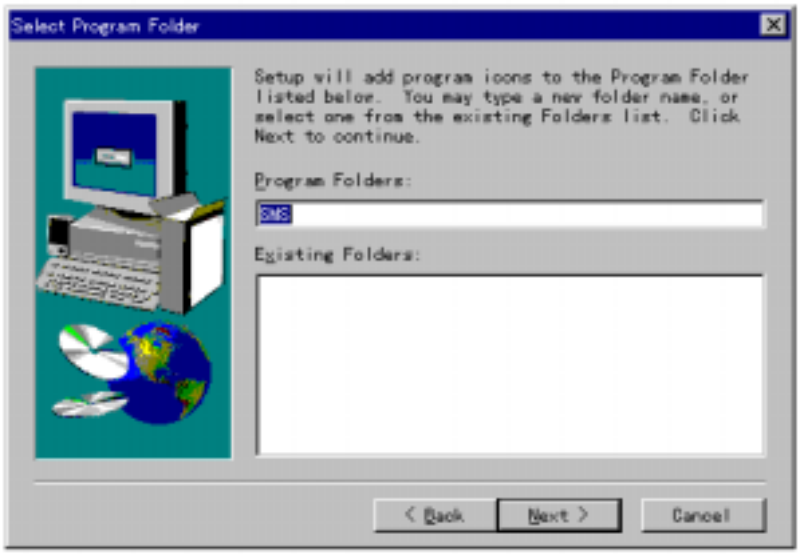

Choose Destination Location
Setup will install JW100SP in the following folder.
To install to this folder, click Next.
To install to a different folder, click Browse and select another folder.
You can choose not to install JW100SP by clicking Cancel to exit Setup.
Destination Folder
C:¥Program Files¥SMS¥JW100SP
Browse...
< Back
Next >
Cancel

6. Click the [Next] button if destination directory is correct.

   If you want to change the install destination, click the [Browse] button to display the [Choose Folder] dialog box, and assign the drive or folder.
   Click [OK] button, and click [Next] button.

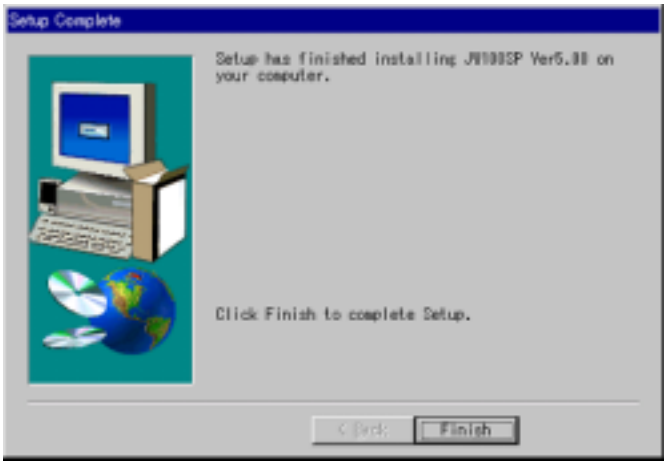


When [Next] button is clicked, [Select Program Folder] dialog box will be displayed.


Select Program Folder
Setup will add program icons to the Program Folder listed below. You may type a new folder name, or select one from the existing Folders list. Click Next to continue.
Program Folders:
SMS
Existing Folders:
< Back
Next >
Cancel

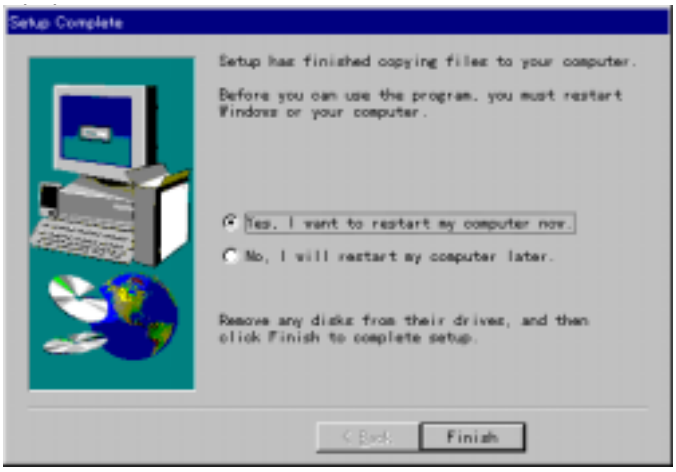
7. If the program folder is correct, click [Next] button.
   If you want to change the folder, input the new folder name, or select the folder from the Existing Folder list.Then, click [Next] button to start up the setup.

When the setup is completed, the following dialog box will be displayed.



8. If you click [Finish] button, the same screen at the moment of the setup is displayed, and it completes the setup.

(Caution) Sometimes,the following dialog box is displayed instead of the dialog box which is shown


Setup Complete
Setup has finished copying files to your computer.
Before you can use the program, you must restart Windows or your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish

In this case,click [Finish] button,and restart the computer.Then,the setup will be complete.

9. To start JW-100SP, click [Programs]-[Sms]-[JW100SP] on the start menu of Windows98. (Refer to Chapter 3)

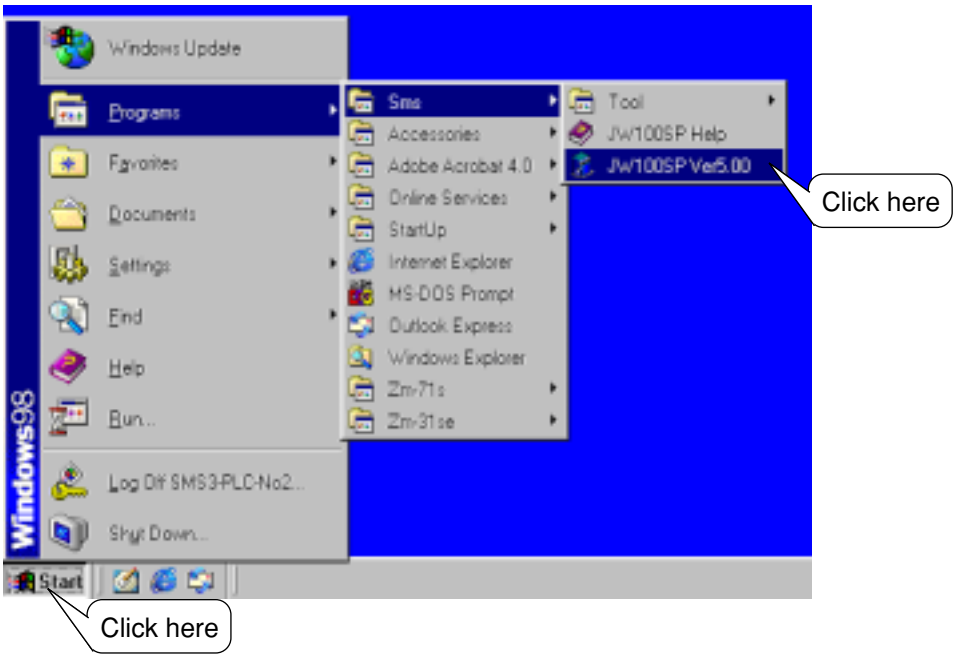
Chapter 3 Basic Operation

3-1 Starting-up and Quitting

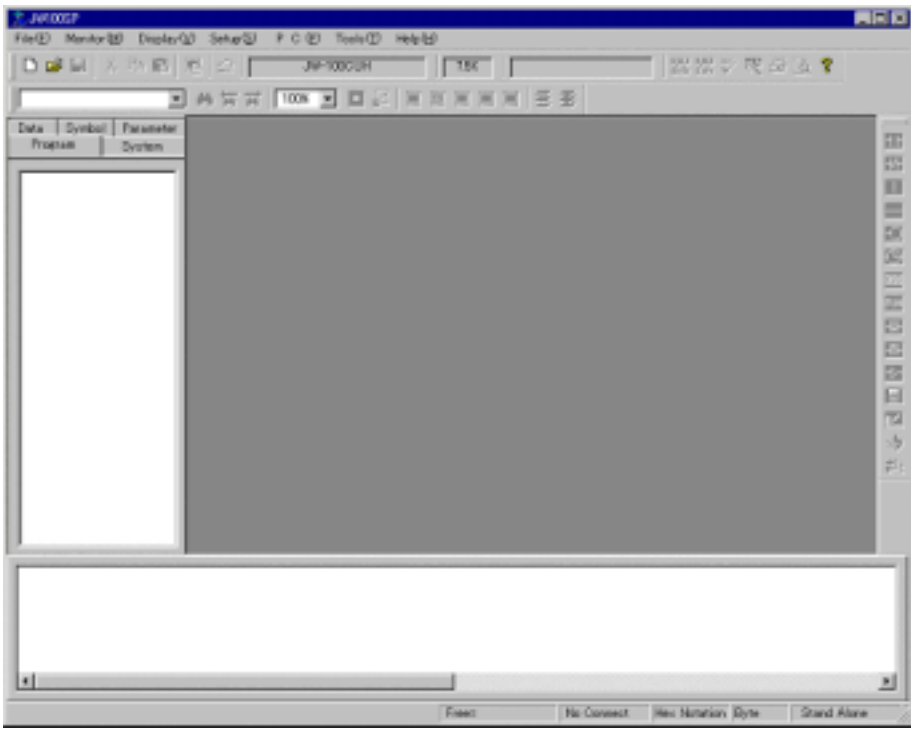
How to start or quit JW-100SP will be explained.

■ Starting-up JW-100SP

1. Click [Start] button of the task bar on the Windows 98 screen.
2. Click [Programs]-[Sms]-[JW100SP] on the start menu.

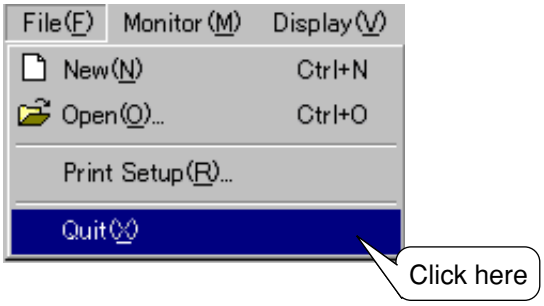


JW-100SP will start-up, and the principle screen (the main window) will be displayed.



■ Quitting JW-100SP

1. Click [File]-[Quit] on the menu bar.



You can also quit the operation by clicking ✕ at the upper-right of the window.

3-2 List of files about JW-100SP

JW-100SP opens program-related files and a variety of data at a time so that you can create or edit files about JW-100SP. The list of JW-100SP related files is as follows:

Classification	Extension	Contents	Data compatibility with JW-50SP	File type *1
Program related	*.pgm	Program	Yes	●
	*.lad	Ladder screen information	No	●
	*.la2	Ladder screen information (in case of more than 31.5K words)	No	●
	*.ist	Mnemonic screen information	No	●
	*.is2	Mnemonic screen information (in case of more than 31.5K words)	No	●
	*.lcm	Line comment	No	●
System memory related	*.sys	System memory	Yes	●
Data memory related	*.dat	Data memory	Yes	●
	*.dfi	Data memory,file memory	No	■
	*.fil	File memory	Yes	■
Parameter related	*.prm	Parameter (JW20H/30H)	Yes	●
Symbol /comment related	*.syc	Symbol/comment	No	●
	*.sye	Symbol/comment	Yes (V5.0 or later)	■
	*.sym	Symbol/comment	Yes (V4.0A or previous)	■
	*.txt	Text	No	■
Optional parameters related	*.2rm	Remote I/O master station parameter	Yes	▲
	*.2rs	Remote I/O slave station parameter	Yes	▲
	*.2dm	Data link master station parameter	Yes	▲
	*.2ds	Data link slave station parameter	Yes	▲
	*.mem	ME-NET master station parameter	Yes	▲
	*.mes	ME-NET slave station parameter	Yes	▲
	*.3cm	SUMINET parameter	Yes	▲
	*.2rd	Other parameter	Yes	▲
Multipoints monitor related	*.mon	Multipoints monitor (registered address)	No	▲
Sampling trace related	*.smp	Sampling trace	No	▲

*1 About file type

●: Files you can save by selecting [File]-[Save]/[Save as] in JW-100SP.

■: Files you can save by selecting [File]-[Export Files] in JW-100SP.
You cannot open these files by selecting [File]-[Open]. Insert them into the file in operation by selecting [File]-[Import Files].

▲: Files you can save by selecting [File]-[Save]/[Save as] in the window of [Option parameters], [Multipoints monitor], or [Sampling trace].

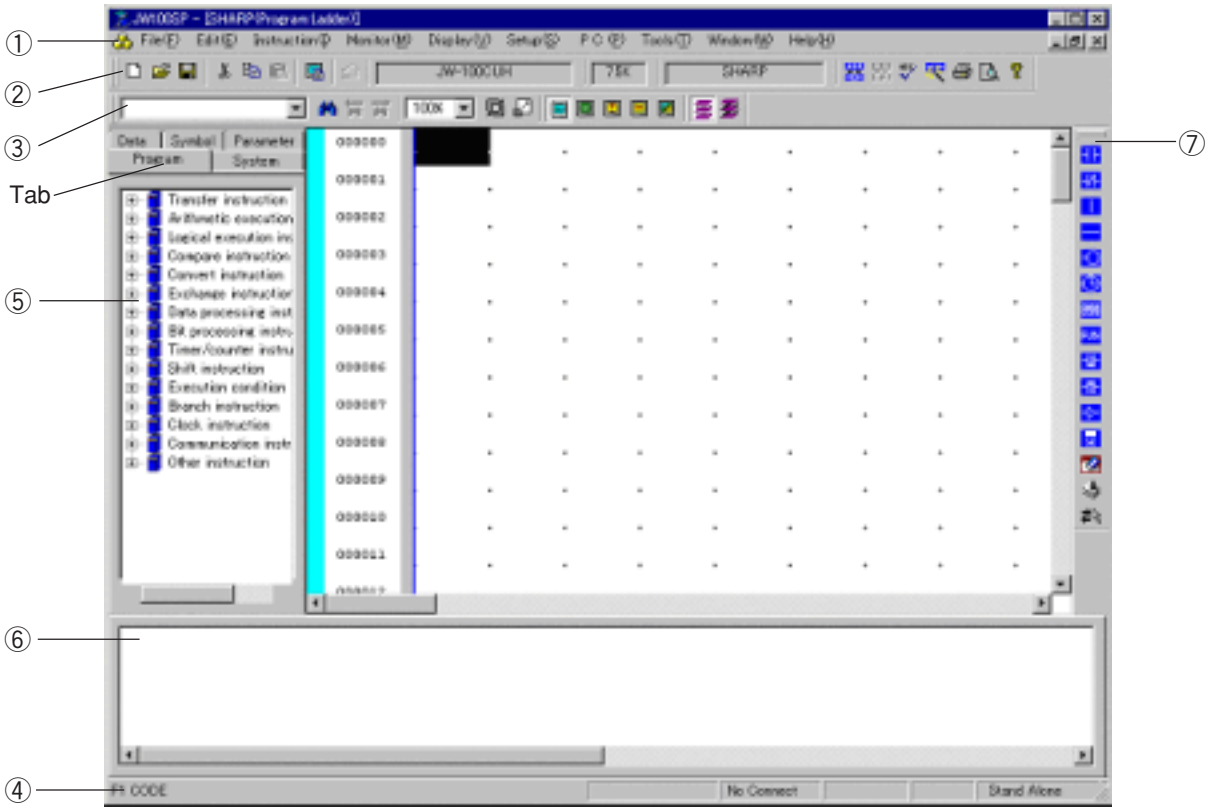
Note

JW-100SP can read the file that carries the extension, "Data compatibility with JW-50SP: Yes," created and saved by JW-50SP. To read JW-100SP files by JW-50SP, you need to save data in the file by the extension, "Data compatibility with JW-50SP: Yes."

3-3 Screen Configuration

■ Screen when you create new file

When you create new file, the [Program: Ladder] windows will be displayed as follows:

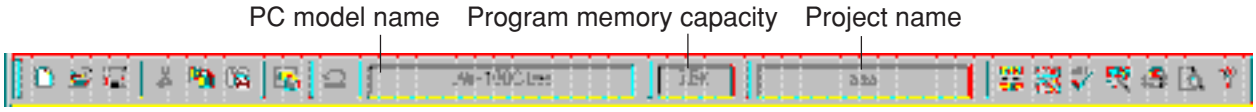


①Menu Bar	: If you click the item name, the menu that calls for JW-100SP functions will be opened. Refer to “Chapter 5 Menu Operation”.
②Main Toolbar	: If you click the button, it calls for that function. → page 3-5
③Sub Toolbar	: If you click the button, it calls for that function. → page 3-6
④Status Bar	: Data display type or running condition of the PC will be displayed.
⑤Tree Bar	: If you click the tab, the window of the selected tab will be active.For each window, refer to “3-4 Kinds of Windows”According to a tab, the tree display will be different.
⑥Message Bar	: Display the operation-completed massage or the error message.
⑦Toolbar for Editing Ladder	: Used when the ladder program is created. It is displayed when [Program:Ladder] window is active.→ page 3-8

●Toolbars other than described above

⑧Toolbar for Editing Mnemonic	: Used when mnemonic program is created. It is displayed when [Program:Mnemonic] window is active.→ page 3-9
⑨Toolbar for Editing Data	: Used for the selection of data display types. It is displayed when [System],[Data],[Parameter] and [Other Parameter] windows are active.→ page 3-10

■ Main Toolbar



◎New Same as [File]-[New]

Create a new file (program, system memory, data memory, symbol/comment, or parameter).

◎Open Same as [File]-[Open]

Open the existing file (program, system memory, data memory, symbol/comment, parameter).

◎Save Same as [File]-[Save]

Save the set of the files in operation (program, system memory, data memory, symbol/comment, or parameter) under the current file names.

◎Cut Same as [Edit]-[Cut]

Cut the selected area and saves it for the moment.

◎Copy Same as [Edit]-[Copy]

Save the selected area and saves it for the moment.

◎Paste Same as [Edit]-[Paste]

Paste the data that was cut or copied onto the position of the cursor.

◎Image Copy Same as [Edit]-[Image Copy]

Temporarily keep in the clipboard the selected area you are editing in the ladder program window as an image data.

◎Undo Same as [Edit]-[Undo]

It brings back the previous state of the operation.

◎Change Display Same as [Display]-[Change Display]

Change the window of the ladder and mnemonic.

◎Change Segment File Same as [Display]-[Changes Segment Display]

Change between file 8 and file 9 of the program area.

◎Program Check Same as [Edit]-[Program Check]

Execute the program check.

◎Arrange Ladder Diagram Same as [Display]-[Arrange Ladder Diagram]

Execute the connection of the disconnected circuit, adjustment of the display position,adjustment of the MCS/JCS condition display, and optimize the ladder circuit.

◎Print Same as [File]-[Print]

Print contents of the active window (ladder program, mnemonic program, system memory, data memory, symbol /comment, parameter).

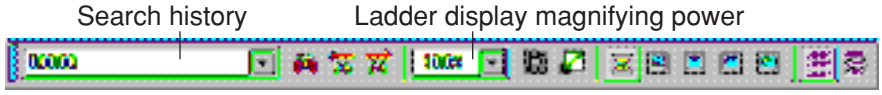
◎Print Preview Same as [File]-[Print Preview]

Display the printing image.

◎Version Same as [Help]-[Version Data (MMVIEW)]

Display the version of JW-100SP.

■ Sub Toolbar



◎Find Same as [Edit]-[Find]

Find the mnemonic, address (relay, register etc..), character line (symbol, comment etc..).

◎Find Previous Same as [Edit]-[Find Previous]

Find the mnemonic, address, character line that are selected from the find character summary from the cursor position to the backward direction.

◎Find Next Same as [Edit]-[Find Next]

Find the mnemonic, address, character line that are selected from the find character summary from the cursor position to the forward direction.

◎Reduce Display Same as [Edit]-[Zoom]-[Zoom(－)]

Contract the program (ladder) display.

◎Expand Display Same as [Edit]-[Zoom]-[Zoom(＋)]

Enlarge the program (ladder) display.

◎Normal Display Same as [Display]-[Display Type]-[Nomal Display Type]

Display the ladder instruction only by its address in the ladder program window.

◎Symbol Display Same as [Display]-[Display Type]-[Symbol Display Type]

Display the ladder instruction only by its symbol in the ladder program window.

◎Display of Comment (8 characters, 4 lines)

Same as [Display]-[Display Type]-[Comment Display Type(8C4R)]

Display the ladder instruction by its address and comment in the ladder program window.

◎Display of Comment (16 characters, 2 lines)

Same as [Display]-[Display Type]-[Comment Display Type(16C2R)]

Display the ladder instruction by its address and comment in the ladder program window.

◎Full Display Same as [Display]-[Display Type]-[Full Display Type]

Display the ladder instruction by its address, symbol and comment in the ladder program window.

◎One line View Same as [Display]-[folding]-[Off]

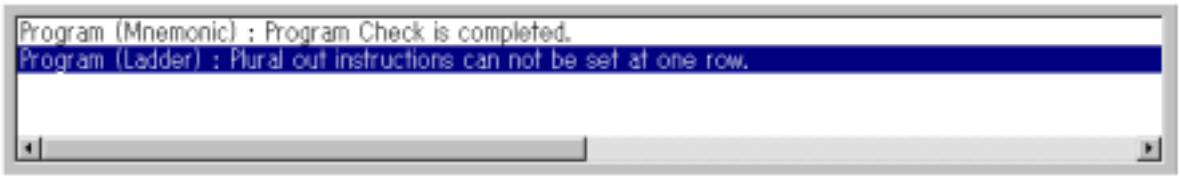
Display each line in the ladder program unfolded in one line in the ladder program window.

◎Word-wrap View Same as [Display]-[folding]-[On]

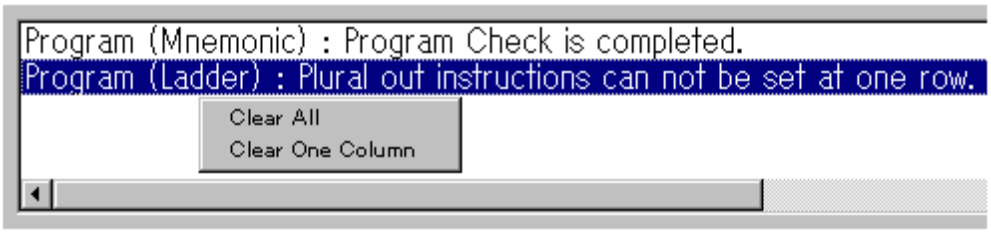
Display each program line, which is longer than the window's width, folded in the ladder program window.

■ Message Bar

Display the operation completed message or the error message.



If you click the right side of the mouse on the message bar, the following menu will be displayed, and you can erase the message if you select the command.


Program (Mnemonic) : Program Check is completed.
Program (Ladder) : Plural out instructions can not be set at one row.
Clear All
Clear One Column

Clear All : Erase all messages inside the message bar.
Clear One Column : Erase the message at the cursor row.

■ Toolbar for Editing Ladder

Use when creating ladder program.

◎A Contact Same as [Instruction]-[A contact]

Used when inputting A contact.

◎B Contact Same as [Instruction]-[B contact]

Used when inputting B contact.

◎Vertical Line Same as [Instruction]-[Vertical Line]

Used when inputting vertical line.

◎Horizontal Line Same as [Instruction]-[Horizontal Line]

Used when inputting horizontal line.

◎OUT Instruction Same as [Instruction]-[OUT]

Used when inputting OUT instruction (coil).

◎TMR Instruction Same as [Instruction]-[TMR]

Used when inputting TMR instruction.

◎CNT Instruction Same as [Instruction]-[CNT]

Used when inputting CNT instruction.

◎Application Instruction Same as [Instruction]-[FUN]

Used when inputting application instruction.

◎F-45 Instruction Same as [Instruction]-[F45]

Used when inputting F-45 instruction (differential OFF).

◎F-44 Instruction Same as [Instruction]-[F44]

Used when inputting F-44 instruction (differential ON).

◎F-43 Instruction Same as [Instruction]-[F43]

Used when inputting F-43 instruction (revert bit).

◎Widen/Narrow Frame

Used when you need to extend the frame downward in result of the added OR circuit by, for example, CNT instruction or multiple inputs of application instruction (F-60 etc..).

◎Eraser

Used when erasing the circuit (cell unit).

◎Convert

Convert the ladder circuit to mnemonic.

◎Change Cursor Type

In case of direct input mode, it changes the instruction cursor to the mouse cursor with arrow.

■ Toolbar for Editing Mnemonic

Use when creating the mnemonic program.

◎STR Instruction Same as [Instruction]-[STR]

Used when inputting STR, STR NOT, AND STR, OR STR instruction.

◎AND Instruction Same as [Instruction]-[AND]

Used when inputting AND, AND NOT, AND STR instruction.

◎OR Instruction Same as [Instruction]-[OR]

Used when inputting OR, OR NOT, OR STR instruction.

◎NOT Instruction Same as [Instruction]-[NOT]

Used when inputting STR NOT, AND NOT, OR NOT instruction.

◎OUT Instruction Same as [Instruction]-[OUT]

Used when inputting OUT instruction.

◎TMR Instruction Same as [Instruction]-[TMR]

Used when inputting TMR instruction and TMR contact.

◎CNT Instruction Same as [Instruction]-[CNT]

Used when inputting CNT instruction and CNT contact.

◎Application Instruction Same as [Instruction]-[FUN]

Used when inputting application instruction.

◎Convert Code

Change the kinds of instruction and register.

- TMR→DTMR(BCD)→DTMR(BIN)→UTMR(BCD)→UTMR(BIN)
- CNT→DCNT(BCD)→DCNT(BIN)→UCNT(BCD)→UCNT(BIN)
- F-XXX→F-XXXw→F-XXXd→FcXXX→FxXXX→FcXXXw→FxXXXw
-]0000→b0000→09000→19000→ ···· →99000→E0000

◎Convert

Convert mnemonic to ladder circuit.

■ Toolbar for Editing Data

Used when selecting data display types of system memory, data memory, parameter.

◎Displays in Binary Notation Same as [Display]-[Display in Binary Notation]
Displays data in binary notation

◎Displays in Octal Notation Same as [Display]-[Display in Octal Notation]
Displays data in octal notation.

◎Displays in Decimal Notation Same as [Display]-[Display in Decimal Notation]
Displays data in decimal notation.

◎Displays in Decimal Notation (with sign)
Same as [Display]-[Display in Decimal Notation (with +/-)]
Displays data in decimal notation with a sign of plus or minus.

◎Displays in Hex Notation Same as [Display]-[Display in Hex Notation]
Displays data in hexadecimal notation.

◎Displays in ASCII Same as [Display]-[Display in ASCII]
Displays data in ASCII character.

◎Displays in Byte Same as [Display]-[Display in Byte]
Displays data in 1 byte (8 bit data).

◎Displays in Word Same as [Display]-[Display in Word]
Displays data in 1 word (16 bit data).

◎Displays in Double Word Same as [Display]-[Display in Double Word]
Displays data in 2 word (32 bit data).

◎Displays as a List Same as [Display]-[Display in List]
Displays data in summary list.

◎Displays in Detail Same as [Display]-[Detail Display]
Displays data with comment.

3-4 Kinds of Windows

There are following kinds of window in JW-100SP.

① Main window

② Basic window

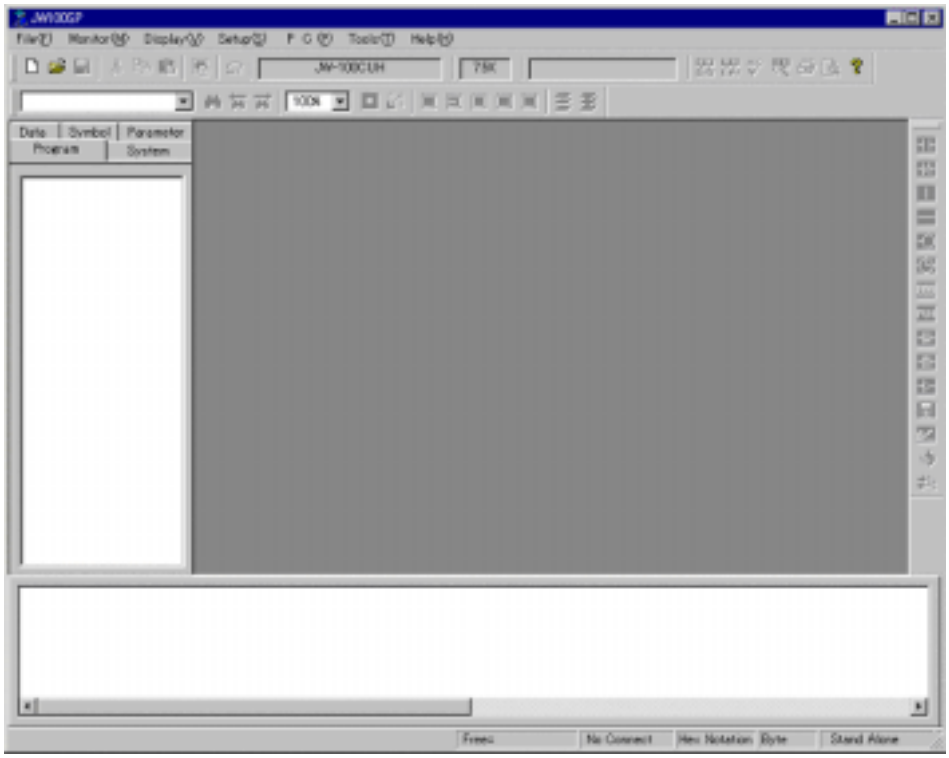
[Program:Ladder] window
[Program:Mnemonic] window
[System] window
[Data] window
[Symbol] window
[Parameter] window

③ Other windows

[Register Library]/[Read from Library] window
[Assign Symbol] window
[Data List] window
[Multipoints Monitor] window
[Sampling Trace] window
[Option Parameter] window
[Edit Circuit (Change)]/[Edit Circuit (Insert)]/[Edit Circuit (Delete)] window
[HF Edit] window
[Help] window

■ Main Window

Main window is a window which is opened up at the starting-up of JW-100SP.
If you close the main window, JW-100SP will quit the system.

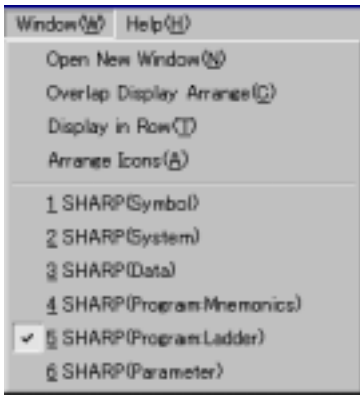


■ Basic Window

Basic window can be selected by clicking on the tree bar, or by the [Window] menu of the menu bar.

Tree Bar

[Window] menu



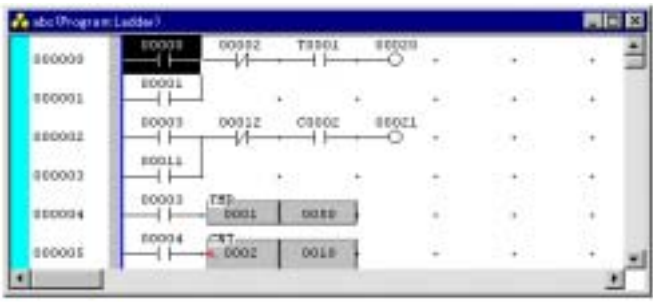
There are six basic windows below:

Window Name	Contents	Possible PC models for selection
[Program:Ladder] window	Create, save, monitor, print , etc... the ladder program	All models
[Program:Mnemonic] window	Create, save, monitor, print , etc...of the mnemonic program	All models
[System] window	Setup, save, monitor, print, etc... of the system memory	All models
[Data] window	Setup, save, monitor, print, etc... of the data memory	All models
[Symbol] window	Setup, save, monitor, print, etc... of the symbol/comment	All models
[Parameter] window	Parameter setup, save, monitor, print, etc... of the special/option module	JW20,JW30H

Note

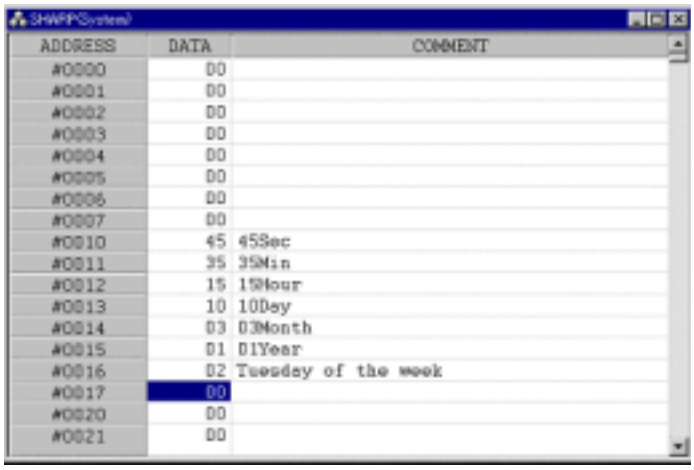
If you click [Program] tab of the Tree Bar,[Program:Ladder] window will be active. To make [Program:Mnemonic] window active, select [Program:Mnemonic] window from the [Window].
Also, you can interchange between [Program:Ladder] and [Program:Mnemonic] windows by selecting [Display]-[Change Display] of the menu bar, or by clicking the button of the Main Toolbar.

(1) [Program:Ladder] window

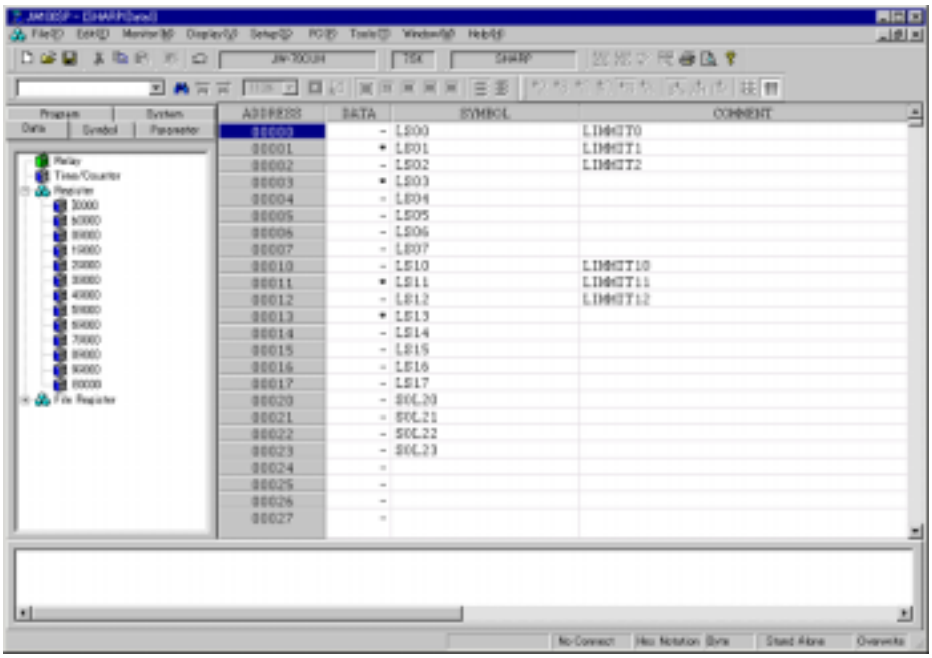


(2) [Program:Mnemonic] window

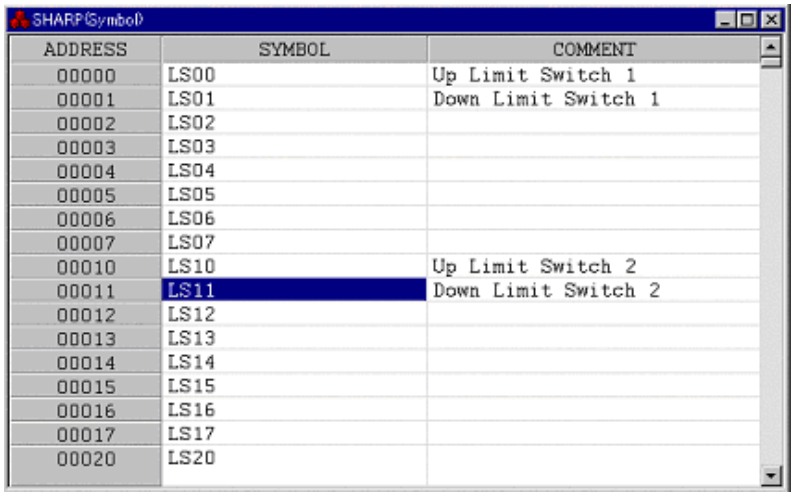
(3) [System] window



(4) [Data] window

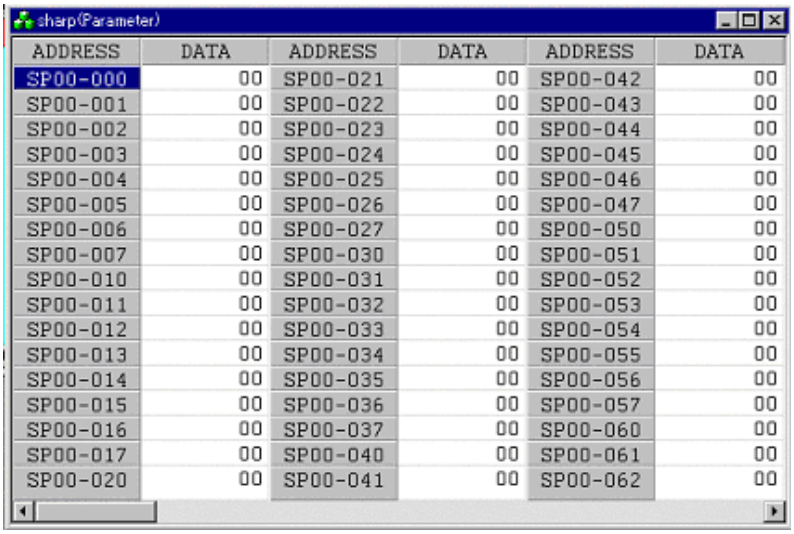


(5) [Symbol] window



ADDRESS	SYMBOL	COMMENT
00000	LS00	Up Limit Switch 1
00001	LS01	Down Limit Switch 1
00002	LS02	
00003	LS03	
00004	LS04	
00005	LS05	
00006	LS06	
00007	LS07	
00010	LS10	Up Limit Switch 2
00011	LS11	Down Limit Switch 2
00012	LS12	
00013	LS13	
00014	LS14	
00015	LS15	
00016	LS16	
00017	LS17	
00020	LS20	

(6) [Parameter] window



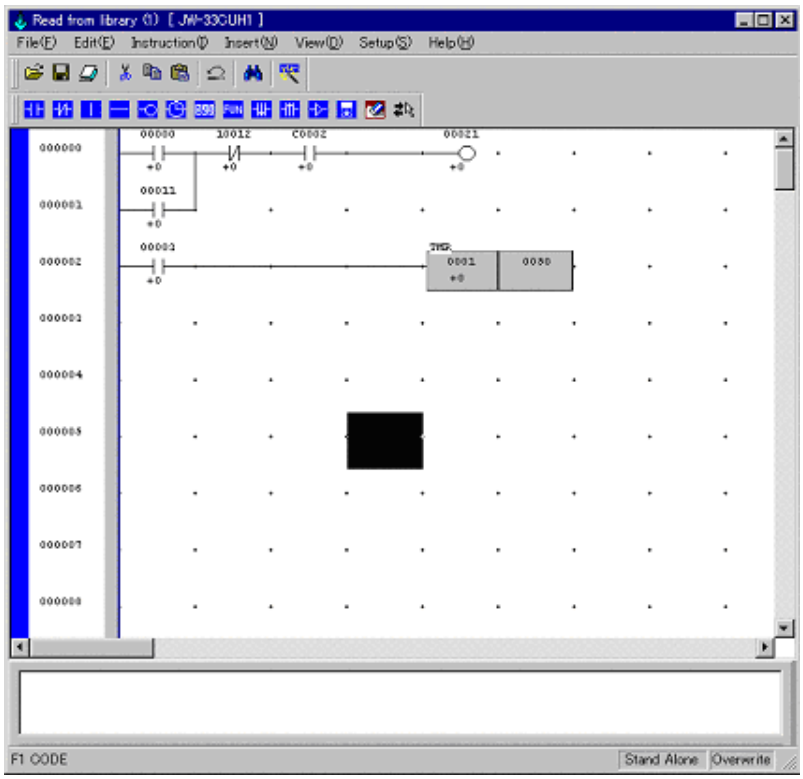
ADDRESS	DATA	ADDRESS	DATA	ADDRESS	DATA
SP00-000	00	SP00-021	00	SP00-042	00
SP00-001	00	SP00-022	00	SP00-043	00
SP00-002	00	SP00-023	00	SP00-044	00
SP00-003	00	SP00-024	00	SP00-045	00
SP00-004	00	SP00-025	00	SP00-046	00
SP00-005	00	SP00-026	00	SP00-047	00
SP00-006	00	SP00-027	00	SP00-050	00
SP00-007	00	SP00-030	00	SP00-051	00
SP00-010	00	SP00-031	00	SP00-052	00
SP00-011	00	SP00-032	00	SP00-053	00
SP00-012	00	SP00-033	00	SP00-054	00
SP00-013	00	SP00-034	00	SP00-055	00
SP00-014	00	SP00-035	00	SP00-056	00
SP00-015	00	SP00-036	00	SP00-057	00
SP00-016	00	SP00-037	00	SP00-060	00
SP00-017	00	SP00-040	00	SP00-061	00
SP00-020	00	SP00-041	00	SP00-062	00

■ Other Windows

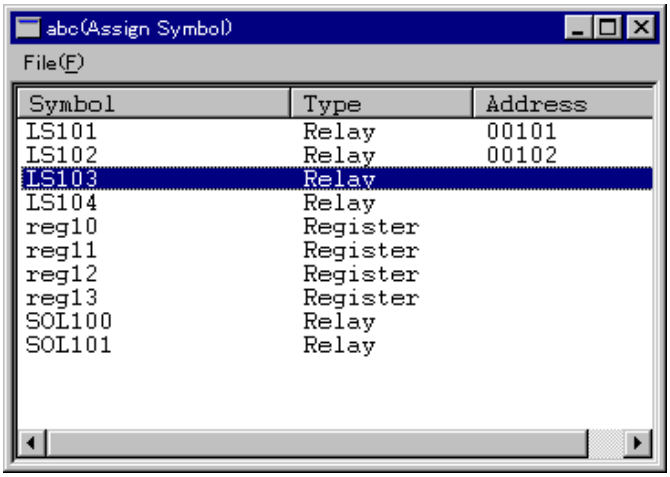
The followings are the windows that are displayed when "command" of the menu bar is selected.

Window name	Possible windows for selection	Commands of the menu bar etc...
[Register Library] window	Program:Ladder	[Tool]-[Library]-[Register]
[Read from Library] window	Program:Ladder	[Tool]-[Library]-[Read]
[Assigns Symbol] window	Program:Ladder Symbol	[Edit]-[Assign Symbol]
[Data List] window	Program:ladder	[Display]-[Data List]
[Multipoints Monitor] window	Main Program:Ladder Program:Mnemonic System Data Symbol Parameter	[Tool]-[Multipoints Monitor]
[Sampling Trace] window	Main Program:Ladder Program:Mnemonic System Data Symbol Parameter	[Tool]-[Sampling Trace]
[Option Parameter] window	Main Program:Ladder Program:Mnemonic System Data Symbol Parameter	[Tool]-[Option Parameter]
[Edit Circuit (Change)] window	Program:Ladder	[Monitor]-[Edit Circuit]-[Change]
[Edit Circuit (Insent)] window	Program:Ladder	[Monitor]-[Edit Circuit]-[Insent]
[Edit Circuit (Delete)] window	Program:Ladder	[Monitor]-[Edit Circuit]-[Delete]
[HF Edit] window	Program:Ladder Program:Mnemonic System Data Symbol Parameter Option Parameter Data List	[File]-[Page Setup]- [Boot HF Editor] button
[Help] window	Main Program:Ladder Program:Mnemonic System Data Symbol Parameter	[Help]-[Find Topic]- Selection of the table of contents, or the setup of the keyword.

(1) [Register Library] window

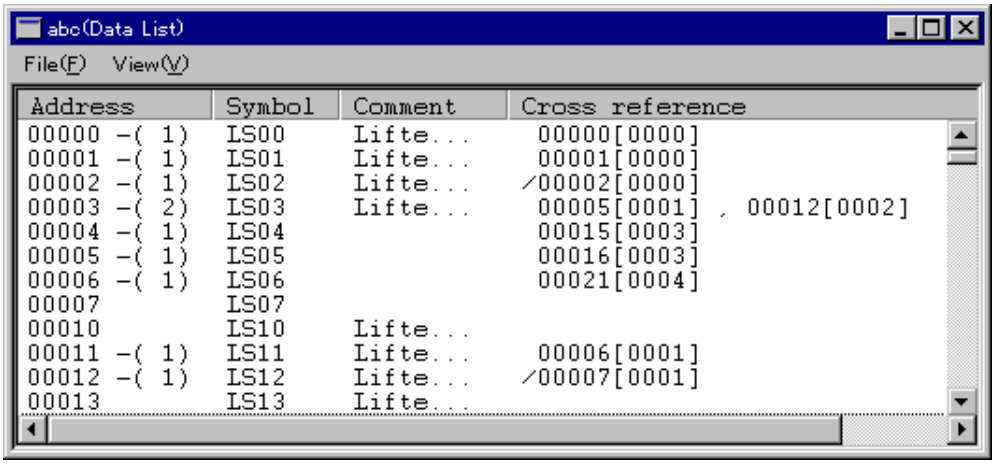


(2) [Assign Symbol] window



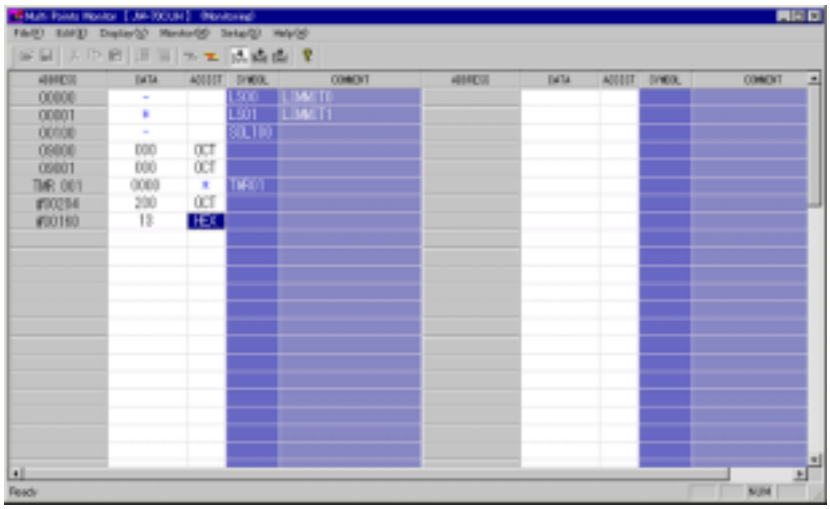
Symbol	Type	Address
LS101	Relay	00101
LS102	Relay	00102
LS103	Relay	
LS104	Relay	
reg10	Register	
reg11	Register	
reg12	Register	
reg13	Register	
SOL100	Relay	
SOL101	Relay	

(3) [Data List] window

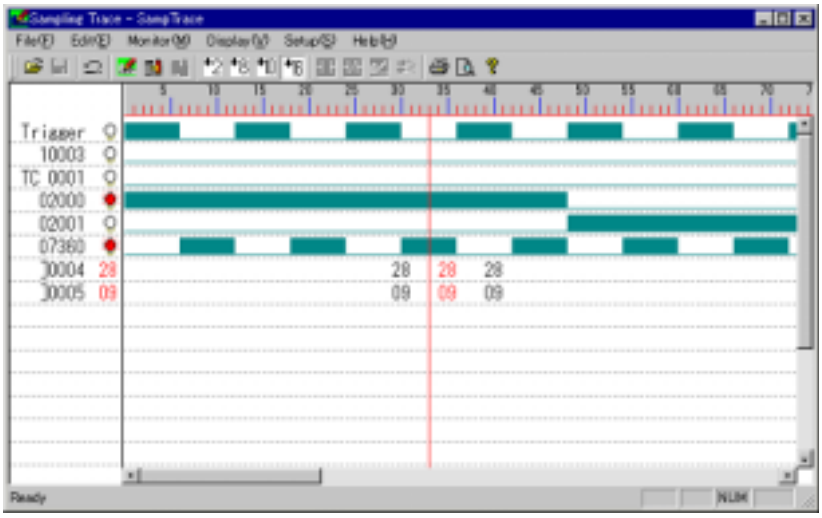


Address	Symbol	Comment	Cross reference
00000 -(1)	LS00	Lifte...	00000[0000]
00001 -(1)	LS01	Lifte...	00001[0000]
00002 -(1)	LS02	Lifte...	/00002[0000]
00003 -(2)	LS03	Lifte...	00005[0001] , 00012[0002]
00004 -(1)	LS04		00015[0003]
00005 -(1)	LS05		00016[0003]
00006 -(1)	LS06		00021[0004]
00007	LS07		
00010	LS10	Lifte...	
00011 -(1)	LS11	Lifte...	00006[0001]
00012 -(1)	LS12	Lifte...	/00007[0001]
00013	LS13	Lifte...	

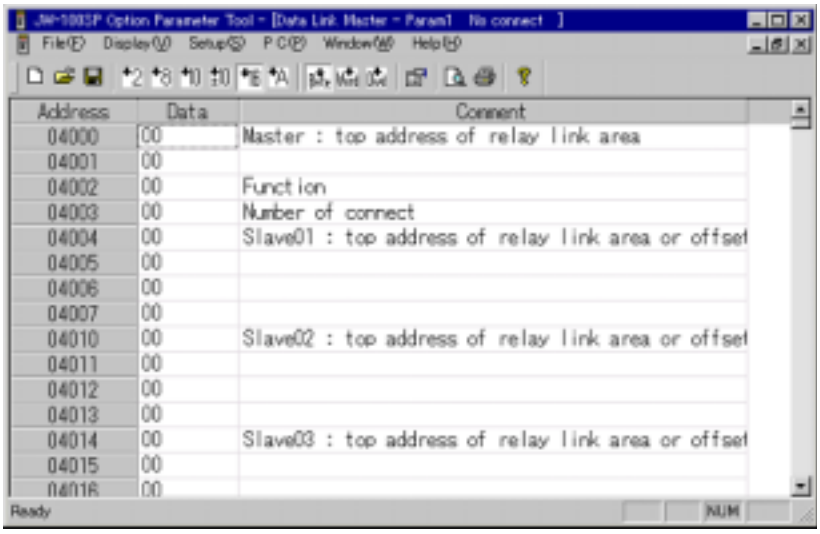
(4) [Multipoints Monitor] window



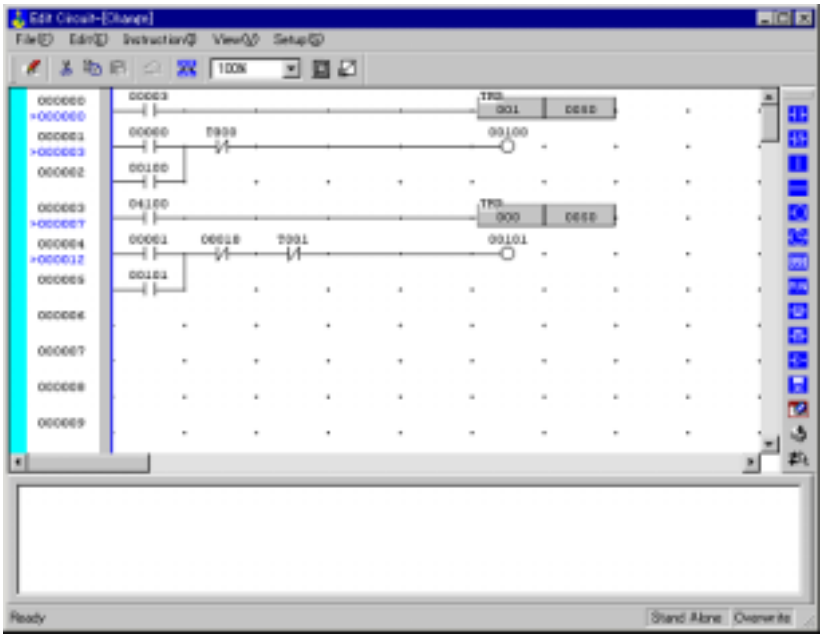
(5) [Sampling Trace] window



(6) [Option Parameter] window

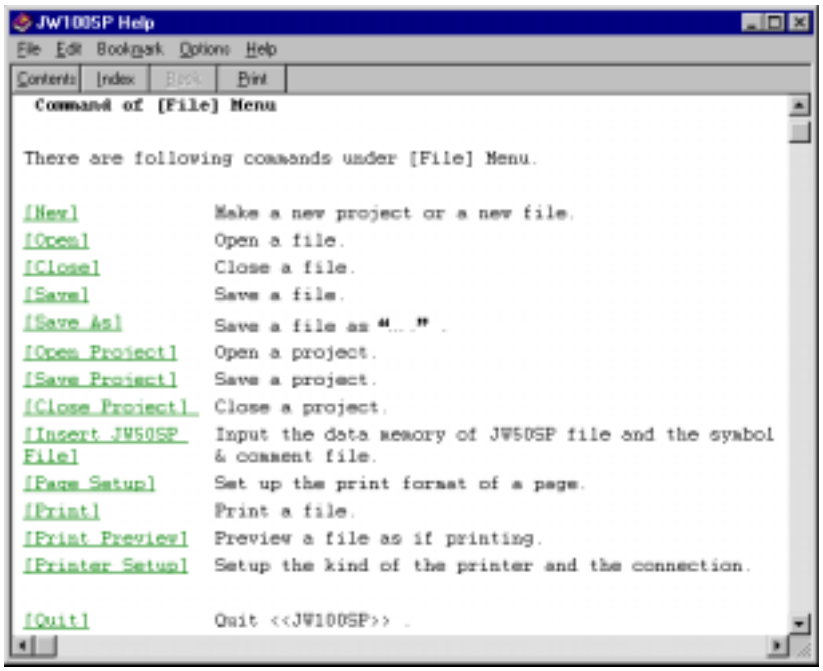


(7) [Edit Circuit (Change)] window



(8) [HF Edit] window

(9) [Help] window


JW100SP Help
File Edit Bookmark Options Help
Contents Index Back Print
Command of [File] Menu
There are following commands under [File] Menu.
[New] Make a new project or a new file.
[Open] Open a file.
[Close] Close a file.
[Save] Save a file.
[Save As] Save a file as "..".
[Open Project] Open a project.
[Save Project] Save a project.
[Close Project] Close a project.
[Insert JW50SP File] Input the data memory of JW50SP file and the symbol & comment file.
[Page Setup] Set up the print format of a page.
[Print] Print a file.
[Print Preview] Preview a file as if printing.
[Printer Setup] Setup the kind of the printer and the connection.
[Quit] Quit <<JW100SP>>.

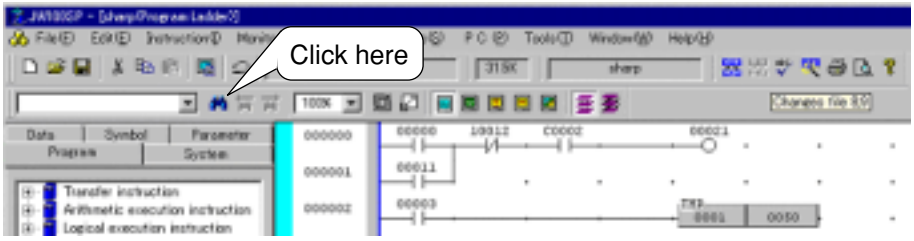
3-5 Selection of Commands

A command is an instruction for JW-100SP to take the responsible tasks.
To select a command, one of the following operations is taken in measure.

①Click the button of the toolbar (Main Toolbar, Sub Toolbar)
②Select the command from the menu.
③Select the command from the shortcut menu.
④Use the shortcut key.

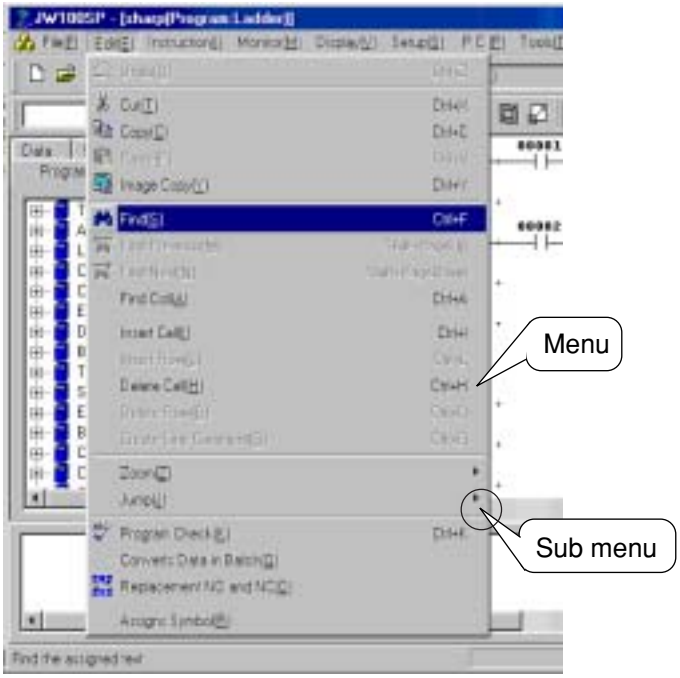
■ Click the Button of the Toolbar

(Example:In case of [Find])



■ Select the Command from the Menu

Commands are grouped and stored in the menu.



(1) When selecting the command by mouse

If you want to select a command by mouse, click the menu name of the menu bar, and then click the command name.
The command that has ▶ mark on the right side of the command name contains the sub menu, so that after moving the mouse pointer to the command name, you can click the command name of the sub menu.
To close the menu without selecting the command, click simply outside of the menu.

(2) When selecting the command by keyboard

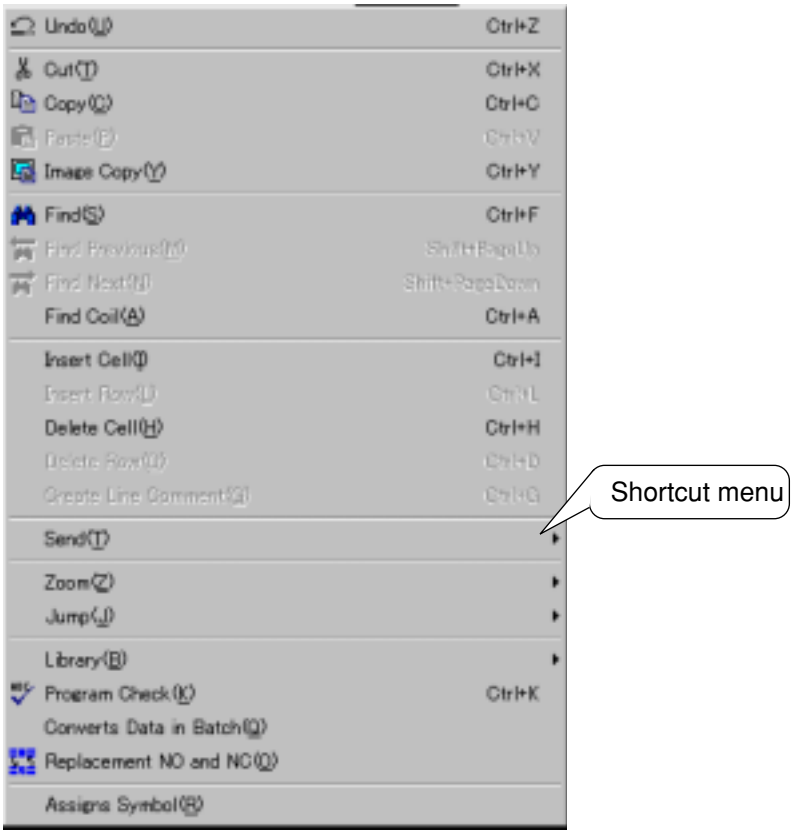
It you want to select a command by keyboard, press [Alt] key to make the menu bar active, and press the key that matches the underlined characters just after the menu name. (for example, in case of [Edit], press [E] key)

Then press the key that matches the underlined characters just after the command name, or the key that matches the numbers (for example, in case of [Find], press [S] key)

By closing the menu without selecting a command, press [Esc] key.

■ Select a Command from the Shortcut Menu

You can display the shortcut menu when the mouse pointer is on the window (Program, System, Data, Symbol, Parameter, etc...) or the Message Bar. Commands that are objects of the current operations are included in the shortcut menu.



To display the shortcut menu, move the mouse pointer on the objects of the operation, and click the right button of the mouse. When the shortcut menu is displayed, click the command name. To close the shortcut menu without selecting the command, click simply outside of the shortcut menu.

■ Use the Shortcut Key

Among commands, there are commands that can be selected by pressing the shortcut key which is displayed at the right side of the command name when the menu is opened. For example, to create a new file, press [N] key with [Ctrl] key being pressed.
There are following shortcut keys.

Shortcut keys	Function
[Ctrl] + [N] key	New
[Ctrl] + [O] key	Open
[Ctrl] + [S] key	Save
[Ctrl] + [P] key	Print
[Ctrl] + [X] key	Cut
[Ctrl] + [C] key	Copy
[Ctrl] + [V] key	Paste
[Ctrl] + [Z] key	Undo
[Ctrl] + [F] key	Find
[Ctrl] + [A] key	Find Coil
[Ctrl] + [I] key	Insert Cell
[Ctrl] + [L] key	Insert Row
[Ctrl] + [H] key	Delete Cell
[Ctrl] + [D] key	Delete Row
[Ctrl] + [G] key	Create Line Comment
[Ctrl] + [T] key	Jumps to Top Row
[Ctrl] + [B] key	Jumps to Unedited Row
[Ctrl] + [J] key	Jumps to Assigned Row
[Ctrl] + [M] key	Jumps to Address Mark
[Ctrl] + [U] key	Jumps to Program Address
[Ctrl] + [K] key	Program Check
[Shift] + [PageUp] key	Find Previous
[Shift] + [PageDown] key	Find Next

3-6 Function Summary

Here, the function (command) of the menu bar of the main window and the basic window is explained. Depends of the window, the"yes/no"functions are different. In addition, refer to"Chapter 5 Menu Operation" for the detail of each function.

■ File

Command	Function
New	Create a new basic file (program, system, data, symbol, parameter).
Open	Open the existing basic file (program, system, data, symbol, parameter).
Close	Close the basic file you are editing (program, system, data, symbol, parameter).
Save	Save the basic file you are editing (program, system, data, symbol, parameter) under the current file name.
Save As	Save the basic file you are editing (program, system, data, symbol, parameter) under a new file name.
Import Files	Import the data memory or symbol/comment file created with a ladder software, JW-50SP.
Export Files	Export the data memory or symbol/comment file you are editing in the file format of a ladder software such as JW-50SP.
FD Verify	Compare the existing files with files in the active window (program, system, data, symbol, parameter).
Page Setup	Setup the format of the page that is to be printed.
Print	Print the contents of the active window (ladder, mnemonic, system, data, symbol, parameter).
Print Preview	Display the image of the files in the active window (ladder, mnemonic, system, data, symbol, parameter).
Printer Setup	Setup "select/connection" of the printer.
Quit	Quit the system of JW-100SP.

■ Edit

Command	Function
Undo	It brings back the previous state of the operation.
Cut	Cut the selected area and saves it for the moment.
Copy	Save the selected area and saves it for the moment.
Paste	Paste the data that was cut or copied onto the position of the cursor.
Image Copy	Temporarily keep in the clipboard the selected area you are editing in the program ladder window as an image data.
Find	Find mnemonic, address (relay, register etc..),character line (symbol, comment etc..) from the active window.
Find Previous	In the selected active window, search mnemonic, address, character line (that are assigned in the search character summary) from the cursor position to the backward direction.
Find Next	In the selected active window, search mnemonic, address, character line (that are assigned in the search character summary) from the cursor position to the forward direction.
Find Coil	Search the output (coil) in which the relay address of the cursor position (on A contact and B contact) is being used.
Insert Cell	Insert the cell in the assigned area.
Insert Row	Insert the row in the assigned area.
Delete Cell	Delete the cell in the assigned area.
Delete Row	Delete the row in the assigned area.
Create Line Comment	Input the comment in the assigned line.
Zoom [Zoom(＋)]	Enlarge the display of the ladder program
Zoom [Zoom(－)]	Contract the display of the ladder program
Jump [To Top Row]	Move the cursor to the front row of the window.
Jump [To Unedited Row]	Move the cursor to the unwritten row for the ladder program, and for mnemonic program, the cursor is moved to the row of NOP instruction.
Jump [To Assigned Row]	Move the cursor to the assigned row.
Jump [To Address Mark]	Move the cursor to the line of address mark which has been setup.
Jump [To Program Address]	Move the cursor to the specified address line.
Program Check	Check the grammar and format of the ladder program.
Converts Data in Batch	Convert the address number such as relay or register in batch.
Replacement NO and NC	Replace A contact with B contact, or vice versa, at the point equal to the relay address of the specified contact.
Assigns Symbol	[Assign Symbol] window is opened. Here, the symbol that was input by the ladder program is assigned to the address.

■ Instruction

Command	Function
A Contact	Used for inputting A contact when editing ladder.
B Contact	Used for inputting B contact when editing ladder.
Horizontal Line	Used for inputting horizontal line when editing ladder.
Vertical Line	Used for inputting vertical line when editing ladder.
STR	Used for inputting STR, STR NOT, AND STR, OR STR when editing mnemonic.
NOT	Used for inputting STR NOT, AND NOT, OR NOT when editing mnemonic.
AND	Used for inputting AND, AND NOT, AND STR when editing mnemonic.
OR	Used for inputting OR, OR NOT, OR STR when editing mnemonic.
OUT	Used for inputting OUT instruction (coil)
TMR	Used for inputting TMR instruction. Used also for inputting TMR contact when editing mnemonic.
CNT	Used for inputting CNT instruction. Used also for inputting CNT contact when editing mnemonic.
FUN	Used for inputting application instruction.
F43	Used for inputting F-43 instruction (revert bit).
F44	Used for inputting F-44 instruction (differential ON).
F45	Used for inputting F-45 instruction (differential OFF).
F-20 (MD)	Used for inputting F-20 instruction (MD).

■ Monitor

Command	Function
Start Monitoring	Start the monitoring.
Stop Monitoring	Stop the monitoring.
I/O Forced Processing	ON/OFF the relay of the PC with force.
Edit Circuit [Change]	Change the ladder circuit of the PC in the monitoring.
Edit Circuit [Insert]	Insert the ladder circuit of the PC in the monitoring.
Edit Circuit [Delete]	Delete the ladder circuit of the PC in the monitoring.

■ Display

Command	Function
Display Type	Select the display of the address/symbol inside the ladder program.
Change Display	Change between ladder and mnemonic window.
Changes Type of Monitor	Assign the monitoring type of the ladder program (notation display yes/no),and the register display type (octal/decimal/hexadecimal)
Change Segment Display	Change between the file 8 and file 9 of the program area.
Data List	[Data List] window is opened. Here, address (contact number, register number etc...), symbol, comment and cross reference that are being used in the program are displayed.
Arrange Ladder Diagram	Execute the connection of the disconnected circuit, the display position adjustment of the output instruction, the adjustment of MCS/JCS condition display, and optimize the ladder circuit.
Display in Binary Notation	Displays data in binary notation.
Display in Octal Notation	Displays data in octal notation.
Display in Decimal Notation	Displays data in decimal notation.
Display in Decimal Notation (with +/-)	Display data in decimal notation with a sign of plus or minus.
Displays in Hex Notation	Displays data in hexadecimal notation.
Display in ASCII	Displays data in ASCII character.
Display in Byte	Displays data in 1 byte (8 bit data) unit.
Display in Word	Displays data in 1 word (16 bit data) unit.
Display in Double Word	Displays data in 2 word (32 bit data) unit.
Detail Display	Displays data with comment.
Display in List	Displays data in a summary list.
Main Toolbar	Select “yes/no” display of the main toolbar.
Sub Toolbar	Select “yes/no” display of the sub toolbar.
Status Bar	Select “yes/no” display of the status bar.
Tree Bar	Select “yes/no” display of the tree bar.
Toolbar for Edit Data (L)	Select “yes/no” display of the toolbar for editing the ladder.
Toolbar for Edit Data (I)	Select “yes/no” display of the toolbar for editing the mnemonic.
Toolbar for Edit Data (E)	Select “yes/no” display of the toolbar for editing the data.
Message Bar	Select “yes/no” display of the message bar.

■ Setup

Command	Function
Model Setup	Select the PC models that are objects of the edit/monitor.
Memory Capacity Setup	Select the capacity of the program memory.
Communication Setup	Setup the communication methods with the PC.
Memory Clear	Initialize the internal memory of this personal computer using this software.
Setup Input Type	Setup the input type (input mode, continuous address input, etc...).
Setup Display	Setup the display position of coil, TMR/CNT instruction, application instruction.
Key Layout	Assign keys to input ladder mnemonic.
Check Input of Same Symbol	Select "yes/ no" for checking "input of same symbol" when registering symbol.

■ PC

Command		Function
PC Transfer [Write]		Write program, a variety of data to the PC.
PC Transfer [Read]		Read program, a variety of data to the PC.
PC Transfer [Verify]		Verify with the program and the variety of data of the PC.
Start/Stop		Run/stop the PC.
PC Operation [I/O Search]		Execute I/O search of the PC.
PC Operation [Secret]	Register/Change Password	Register/change the password of the PC.
	Delete Password	Delete the password of the PC.
	Secret : ON	Execute ON of the secret function of the PC.
PC Operation [CU Memory Clear]		Initialize the memory of the PC.
PC Operation [Parity Check]		Execute the parity check of the PC.
PC Operation [Read from EEPROM]		Read from the EEPROM/flash ROM of the PC.
PC Operation [Write to EEPROM]		Write to the EEPROM/flash ROM of thePC.
Create I/O Table		Register I/O table of the PC automatically.
PC Operation [Read I/O Table]		Read I/O table of the PC.
PC Monitor [Error Monitor]		Monitor the error condition of the PC.
PC Monitor [Scan Time Monitor]		Monitor the scan time of the PC.
PC Monitor [Clock Monitor]		Monitor the internal clock of the PC.
Modem Connection [Connect]		Connect to the communication module of the PC through the modem.
Modem Connection [Disconnect]		Disconnect the modem communication with the communication module of the PC.

■ Tools

Command	Function
Library [Read]	Opens the [Read from Library] window. ・You can read a library.
Library [Register]	Opens the [Register Library] window. ・You can register the library.
Multi Points Monitor	Opens the [Mltipoints Monitor] window. ・You can monitor any data in data memory or system memory.
Sampling Trace	Opens the [Sampling Trace] window. ・You can see the ON/OFF information of the programmable controller's relay or the registry information in the form of time chart.
Option Parameter	Opens the [Option Parameter] window. ・You can define the parameter settings of the model to save parameters in the option module.
CAD I/F	Converts the ladder graphical information you are editing to an intermediate language (ASCII code) corresponding to information exchange format. ・You can send the data through the communication port or can read/write the data into external media.

■ Window

Command	Function
Open New Window	Open the new window that carries the same content as the currently active Window .
Overlap Display	Display windows in piles.
Cascade Display	Display windows in a row.
Arrange Icons	Arrange icons under the window.
Window name1, 2, ...	Activate the assigned window.

■ Help

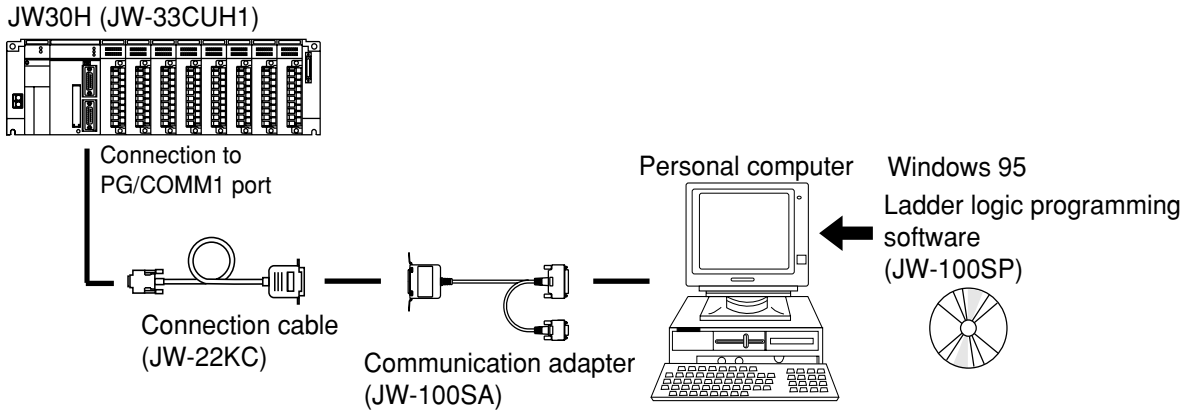
Command	Function
Find Topic	Display the table of contents, or “help” regarding the assigned item by the Keyword.
Version Data (MMVIEW)	Displays the version of JW-100SP.

Chapter 4 Let's Create Program

In this chapter, basic operations such as creating a ladder program, transferring a created program to the PC, monitoring a program or printing a program, are explained.

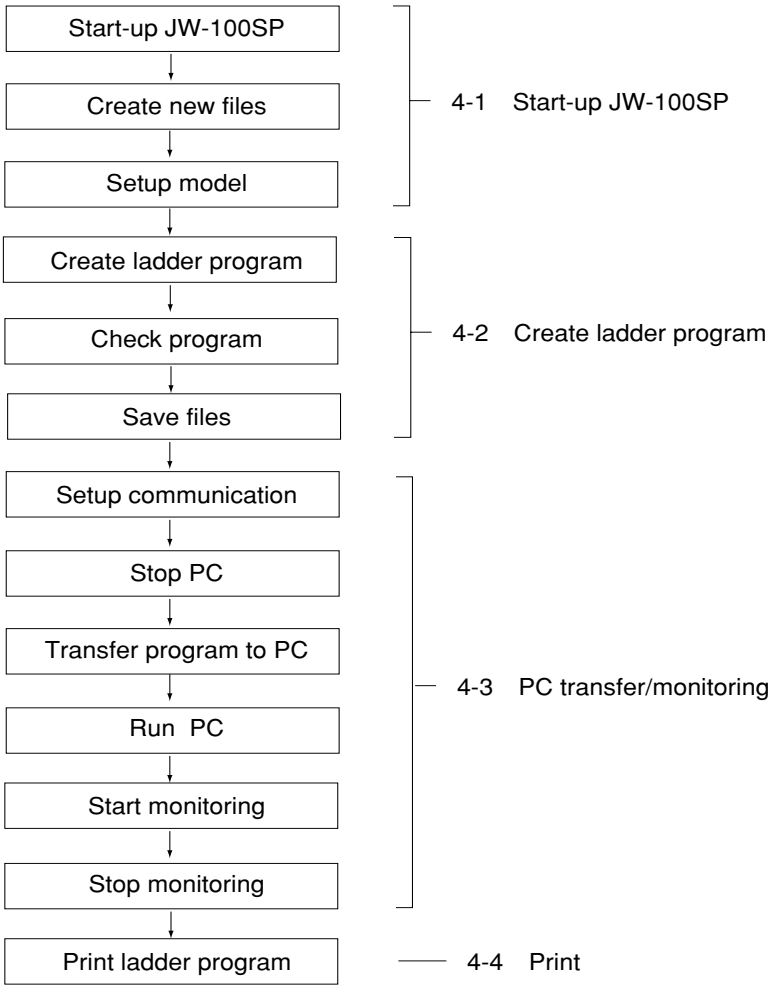
■ System Configuration

Operations explained in this chapter require the following system configuration.



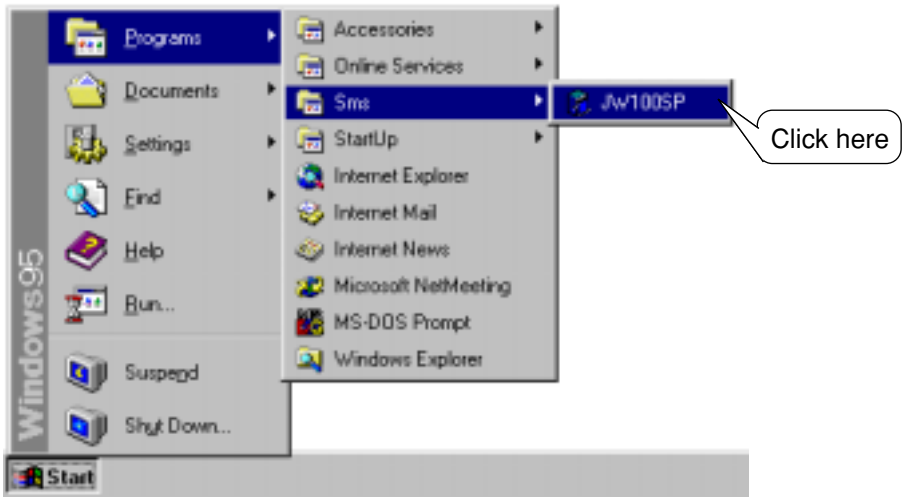
■ Operation Order

The operation orders that are explained in this chapter are described below.

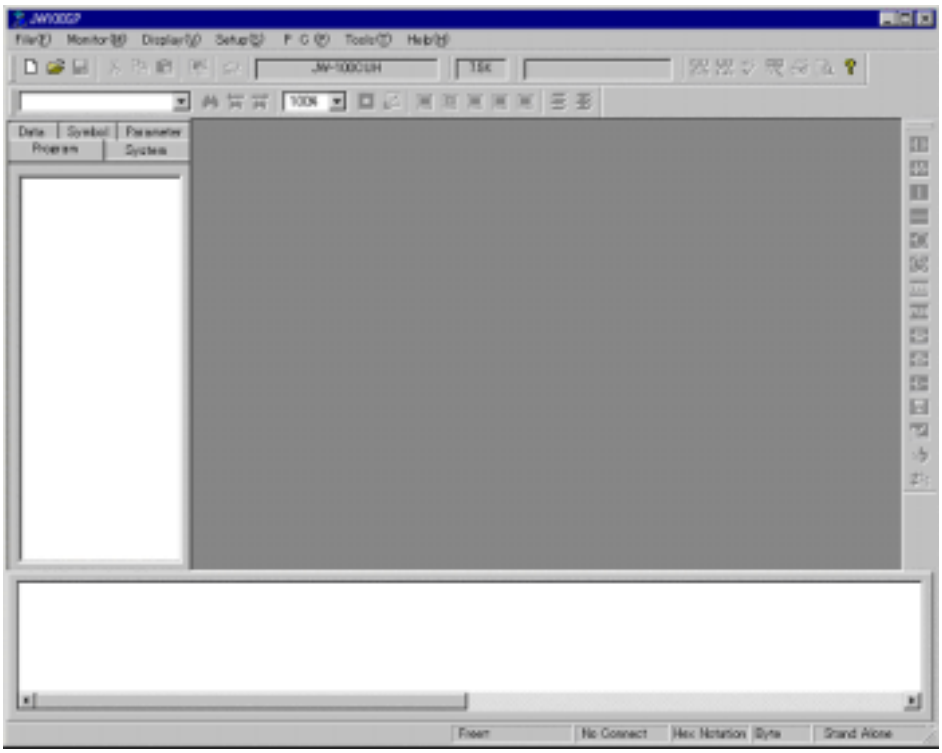


4-1 Start-up JW-100SP

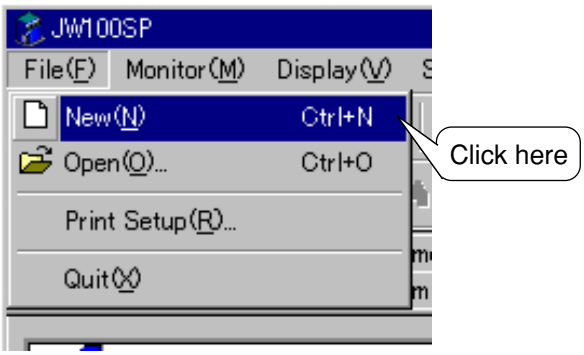
1. Click [Start] button at the task bar on the screen of Windows 95/98.
2. Click [Programs]-[Sms]-[JW100SP] on the start menu.



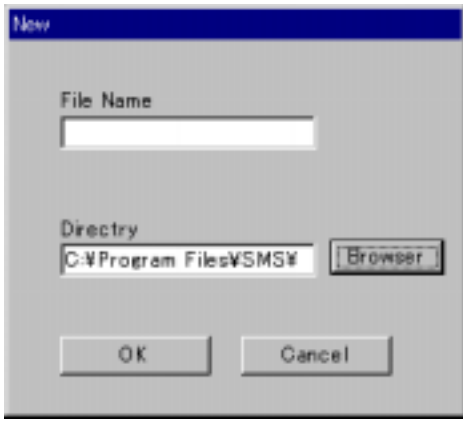
JW-100SP will start-up, and the initial screen will be displayed.



3. Click [File]-[New] of the menu bar.



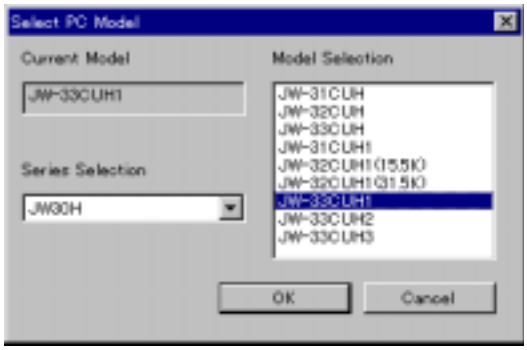
4. When the [New] dialog box is displayed, input the file name you are creating in the file name box. (In the example below, "new" is input as the file name.)
   If you want to change the position (directory) of the created program, click [Browse] button and select the directory (Refer to the page 5-4 for more detail).



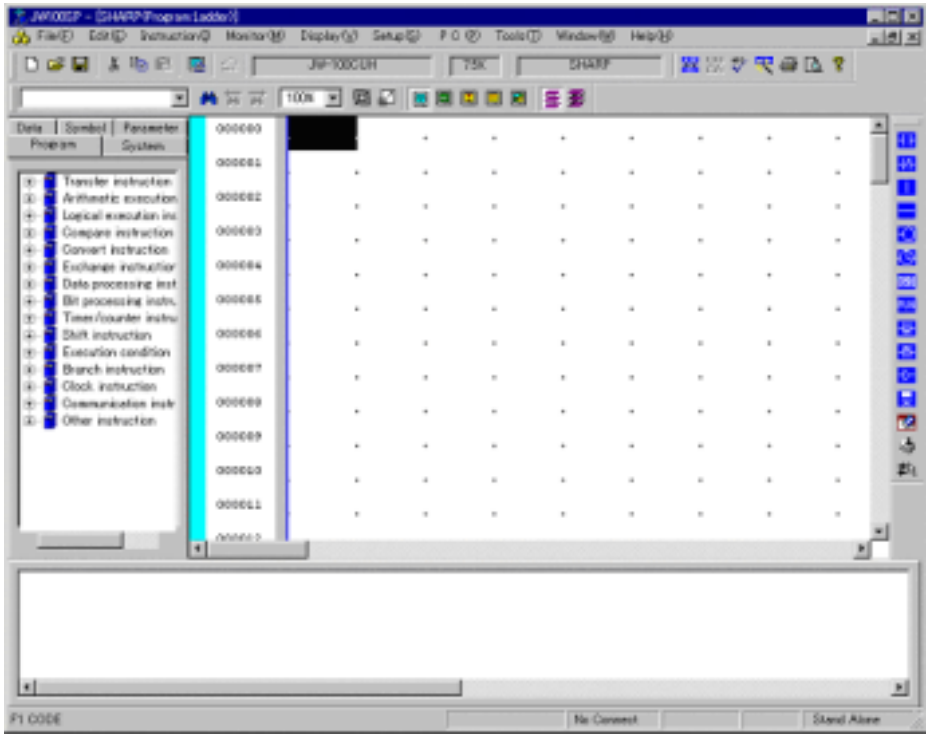
5. If you click [OK] button, [Select PC Model] Dialog box will be displayed.

6. After clicking [Series Selection] box, click [JW30H].

7. Click [JW-33CUH1] inside the [Model Selection] box.

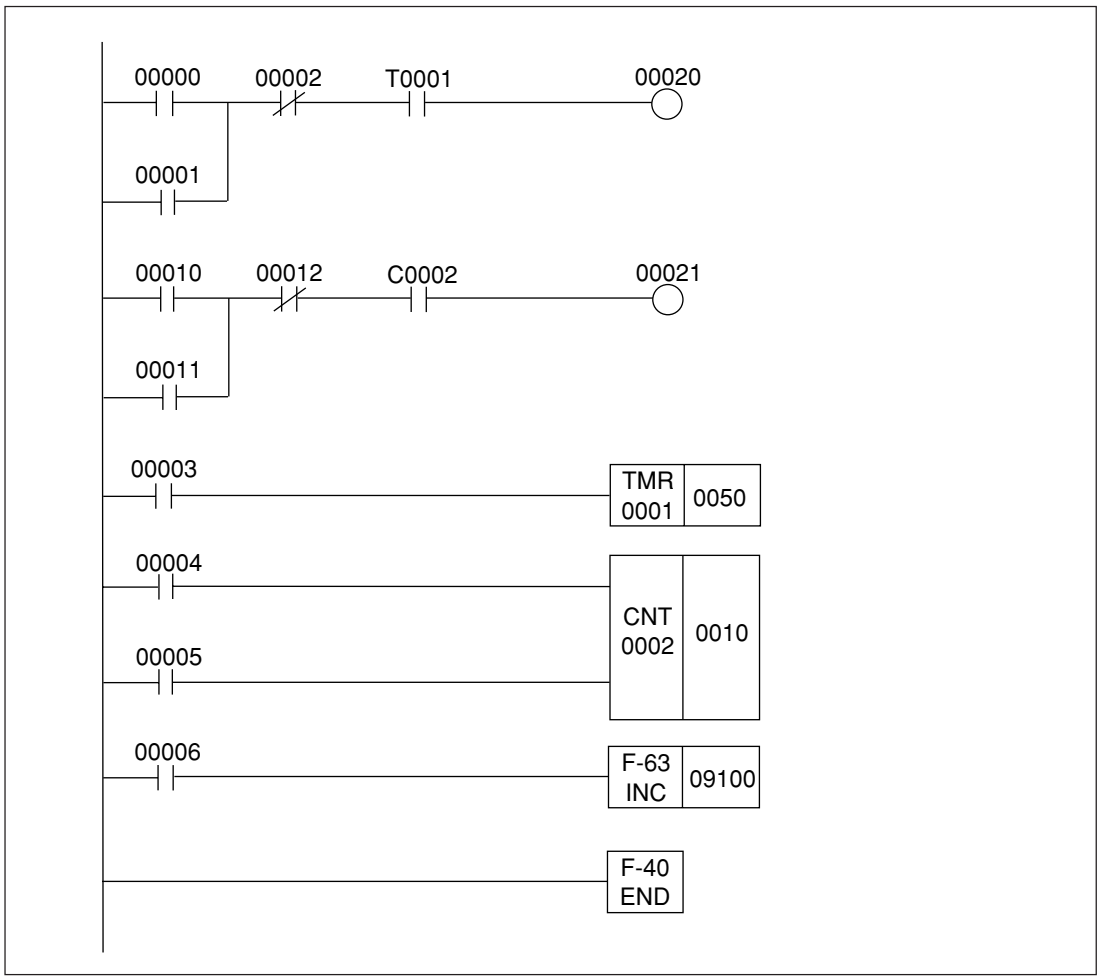


8. If you click [OK] button, the input screen of ladder program will be displayed.



4-2 Create Ladder Program

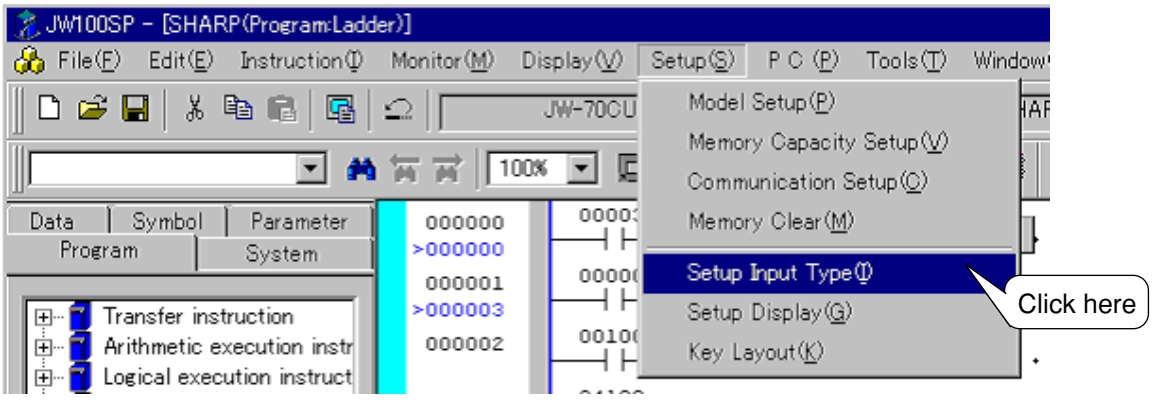
The creating order of the following ladder programs is explained.



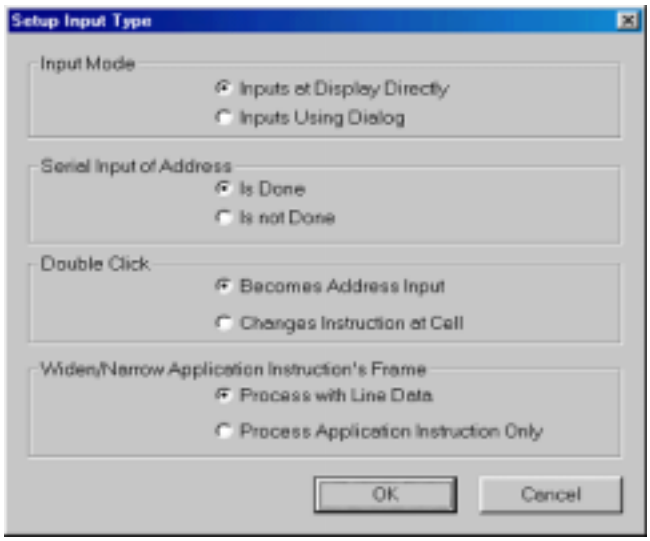
There are two types of input methods of ladder programs:direct input and dialog input.
For the detail of each method, refer to“Chapter 6 Program Edit.”
Here, the dialog input is explained mainly.

■ Setup Input Type

1.Click [Setup]-[Setup Input Type] of the menu bar.

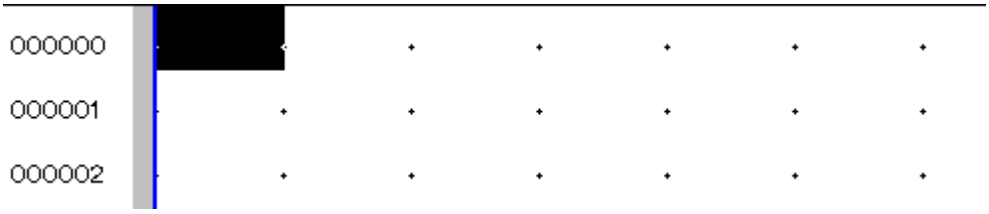


2. When [Setup Input Type] dialog box is displayed, setup the following, and click [OK] button.

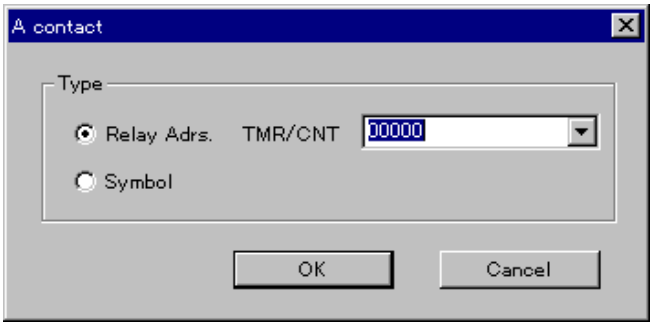


■ Inputting A Contact, B Contact and Coil

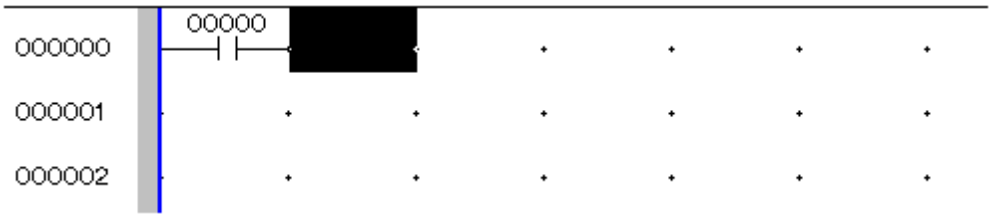
3. Move the mouse cursor to the cell that is at the left side up of the ladder display (column：0 row：0), and click.



4. When inputting A contact, click of the toolbar for editing ladder.
The following [A contact] dialog box will be displayed.

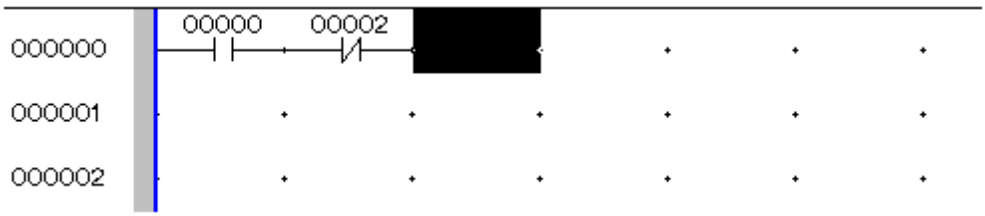


5. After inputting the relay number (No need of inputting when“00000”), click [OK] button. A contact will be displayed, and the cell cursor will move to the right cell.



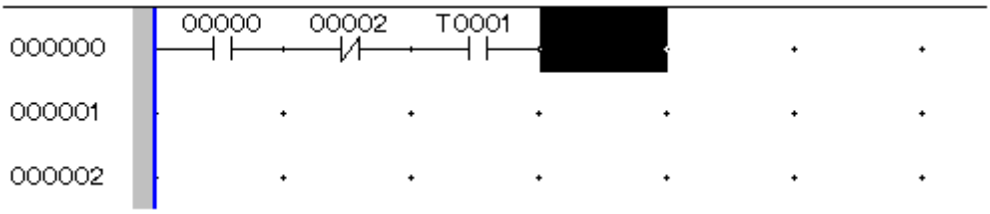
6. When inputting B contact, click of the toolbar for ediing ladder. The following [B contact] dialog box will be displayed.

7. After inputting the relay number([2] in case of “00002”), click [OK] button. B contact will be displayed and the cell cursor will move to the right cell.



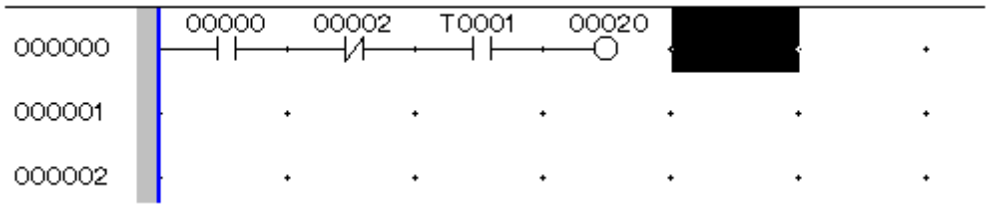
8. To input TMR contact (A contact), first click of the toolbar for ediing ladder. [A contact] dialog box will be displayed, and press inside the box.

9. After clicking [T0000], input TMR number ([1] in case of “0001”), and click [OK] button. TMR contact (A contact) will be displayed, and the cell cursor will move to the right cell.

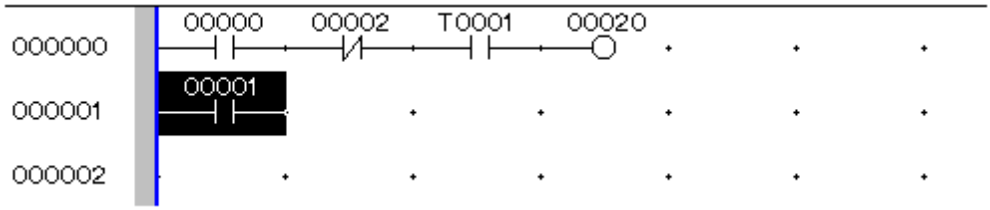


10. To input coil (OUT instruction), click of the toolbar for ediing ladder. The following [OUT] dialog box will be displayed.

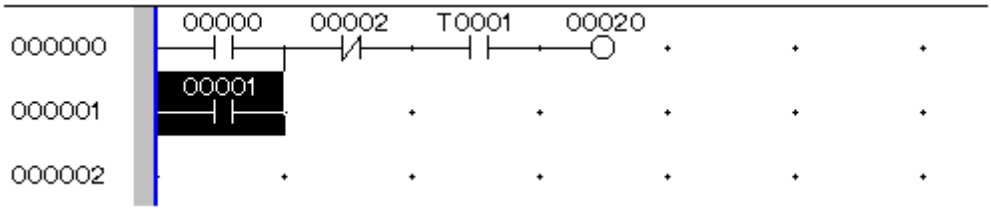
11. After inputting the relay number ([2] [0] in case of“00020”), click [OK] button. OUT instruction will be displayed, and the cell cursor will move to the right cell.



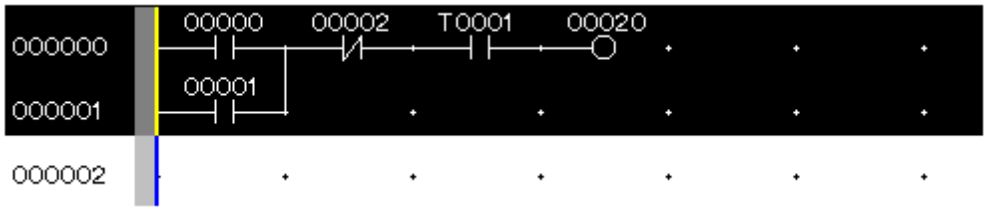
12. Move the cell cursor to the row number 000001 , and after inputting A contact (00001) as the same way as the order No.4 and No.5, move the cell cursor on the A contact (00001).



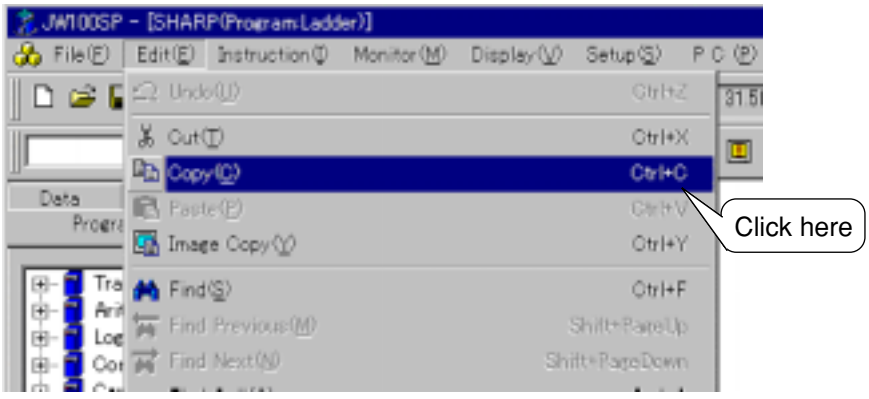
13. Click . A contact (00001) will be connected by OR (OR connection).



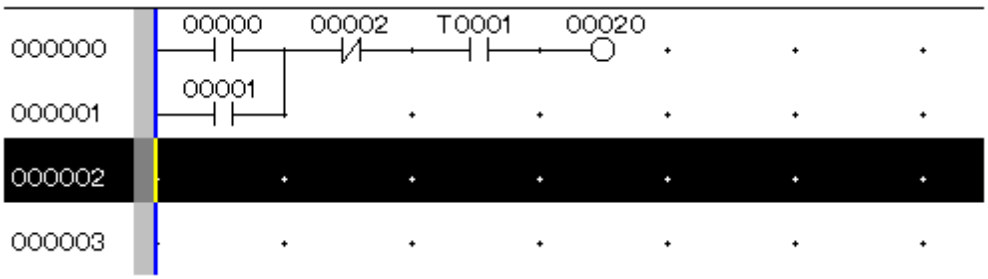
14. Circuits between lines 2 and 3 are similar to the circuits of the lines between 0 and 1, so create first the copy of the circuits between lines 0 and 1.
First, move the mouse cursor to the line number 000000, and drag the cursor to the line 000001.



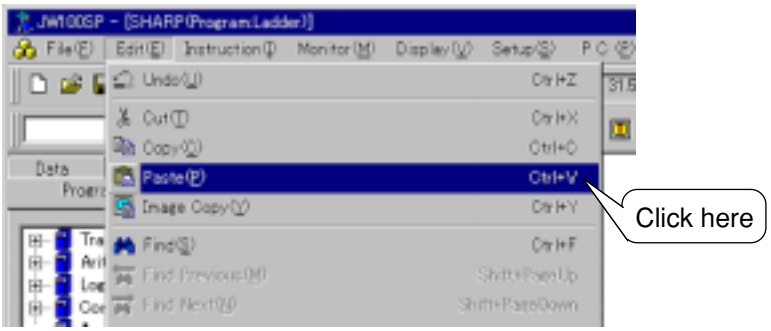
15. Click [Edit]-[Copy] of the menu bar.

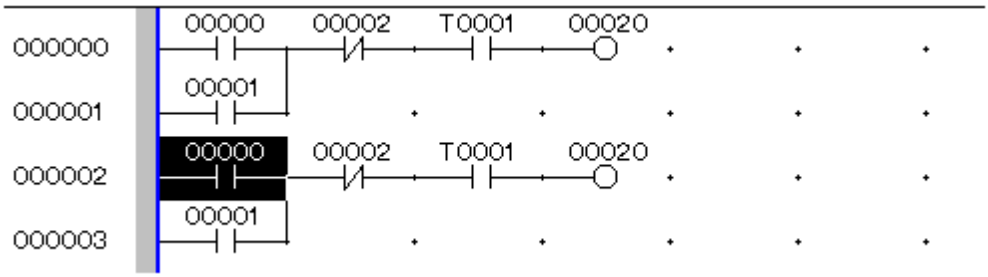


16. Move the mouse cursor to the row number 000002.

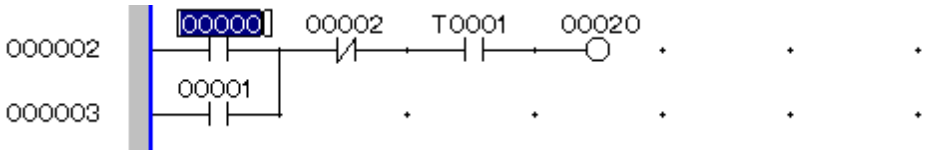


17. If you click [Edit]-[Paste] of the menu bar,“copy”is executed.

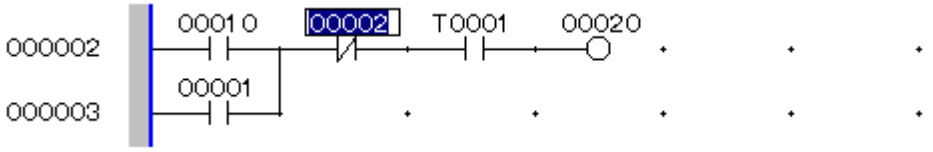




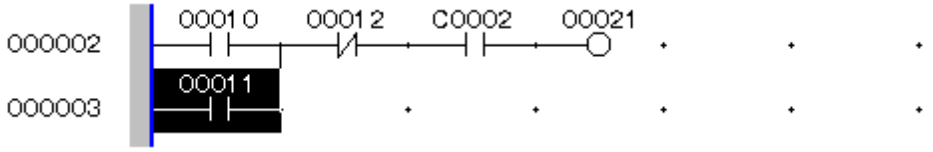
18. If you double click on the contact where a relay number is changed, input of the relay number will be possible.



19. After inputting the relay number ([1] [0] in case of 00010), if you press [Enter] key, the relay number will be changed, and the cell cursor will move to the next contact.



20. Input the relay number continuously, and complete the circuit. In addition, input [C] [2] in case of CNT contact“C0002.”



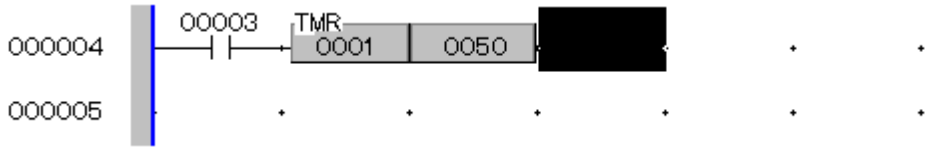
■ Inputting Timer and Counter

21. Input“A contact 00003”as the same way as the order No.3 to No.5.

22. To input TMR instruction, click of the toolbar for editing ladder. The following [TMR Instruction] dialog box will be displayed.

23. Setup TMR type, TMR No. and setup value as the following.

24. If you click [OK] button, TMR instruction will be input.

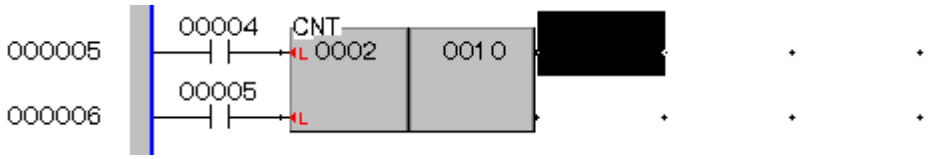


25. After inputting“A contact 00004”and“A contact 00005” as the same way as the order No.3 to No.5 ,move the cell cursor to right next to the count input“A contact 00004”.

26. When inputting CNT instruction, click of the toolbar for ediing ladder.
The following [CNT Instruction] dialog box will be displayed.

27. Setup CNT type, CNT No. and setup value as the following.

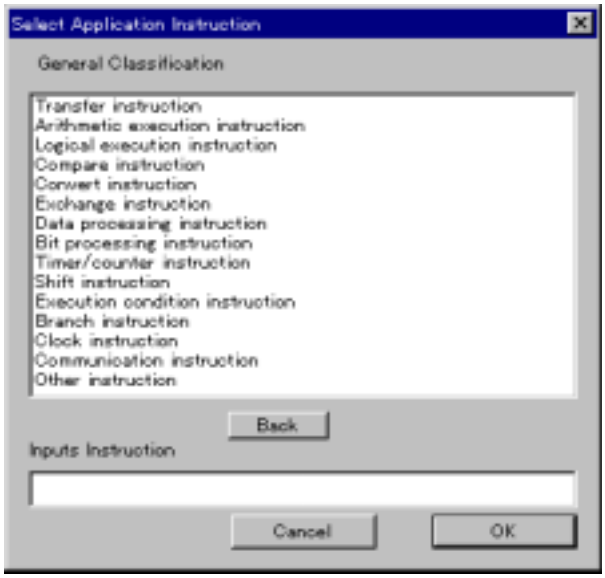
28. If you click [OK] button, CNT instruction will be input.



■ Inputting Application Instruction

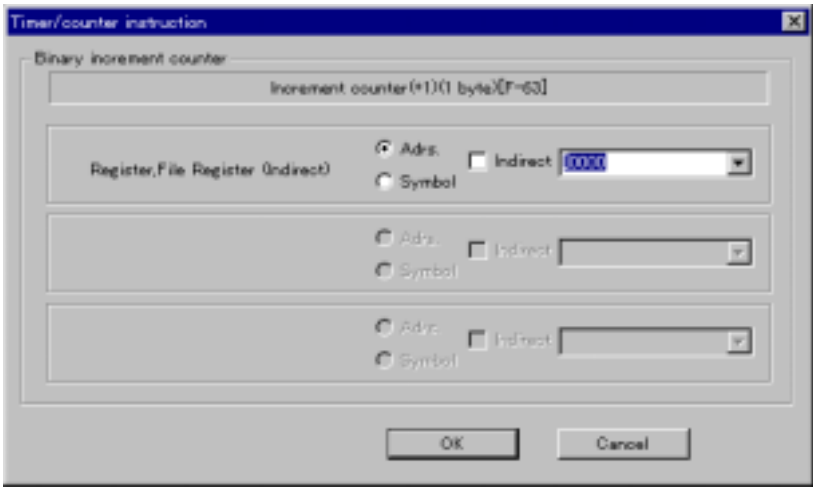
29. Input "A contact 00006" as the same way as the order No.3 to No.5.

30. When inputting application instruction, click FUN of the toolbar for ediing ladder. The following [Select Application Instruction] dialog box will be displayed.

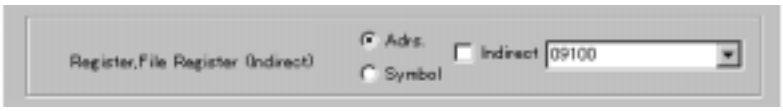


31. There are two types of input methods for application instruction:a method to select the instruction or a method to input the instruction number. Here, we input the instruction number. First, input [F] [6] [3] at the instruction input.

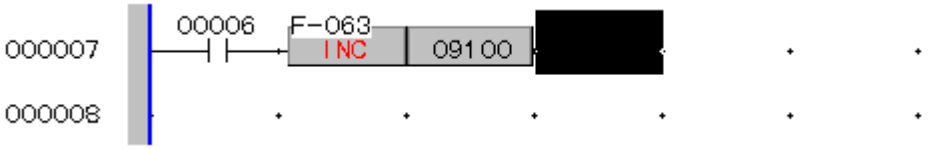
32. If you click [OK] button, [Timer/counter instruction] dialog box will be displayed.



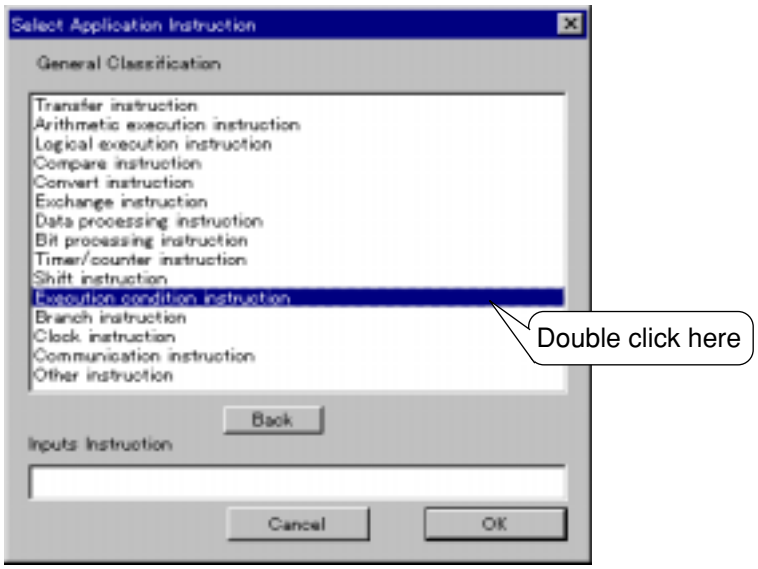
33. After clicking [▼] , select [09000] and input [1] [0] [0]. Then you can assign the register 09100.



34. If you click [OK] button, F-63 (INC) instruction will be input.

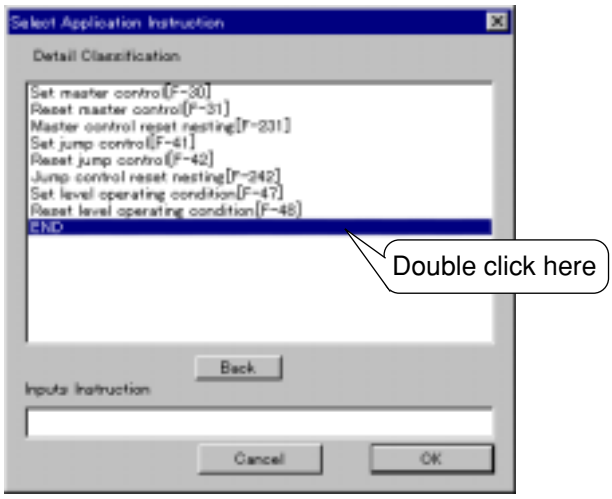


35. After moving the cell cursor to the next line, (the next position is optional), if you click FUN button, [Select Application Instruction] dialog box will be displayed. Here we input F-40 (END) instruction by the method of selecting the instruction. First, double click [Execution condition instruction] at the general classification chart.

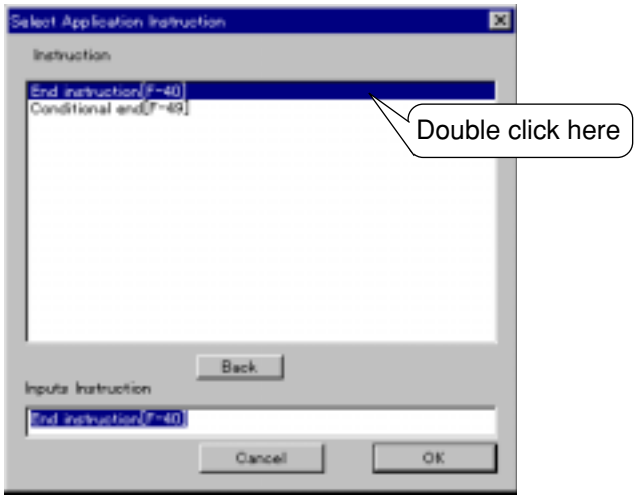


Reference F-40 (END) instruction is automatically written to the final address (“76777”, in case of JW-33CUH1) of the program memory. Therefore, the calculation is executed even without writing it in, but if you write in F-40 (END) instruction right after a program has been created, the calculation time will be short.

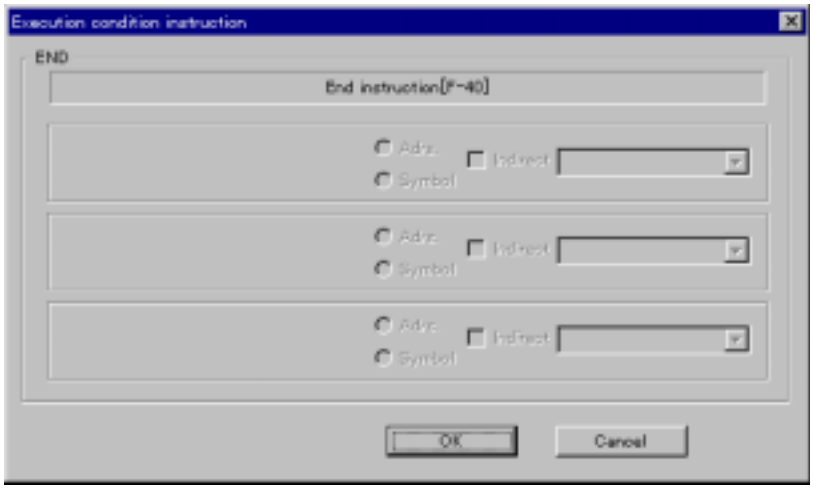
36. Double click [END] at the detail classification chart.



37.If you double click [End instruction [F-40]], the instruction at the instruction input will be displayed.



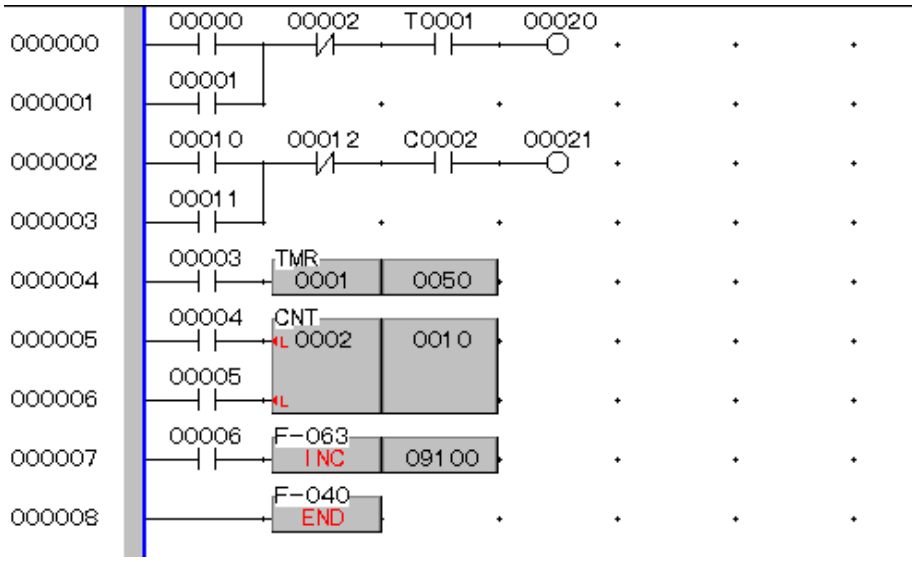
38.If you click [OK] button, [Execution condition instruction] dialog box will be displayed.



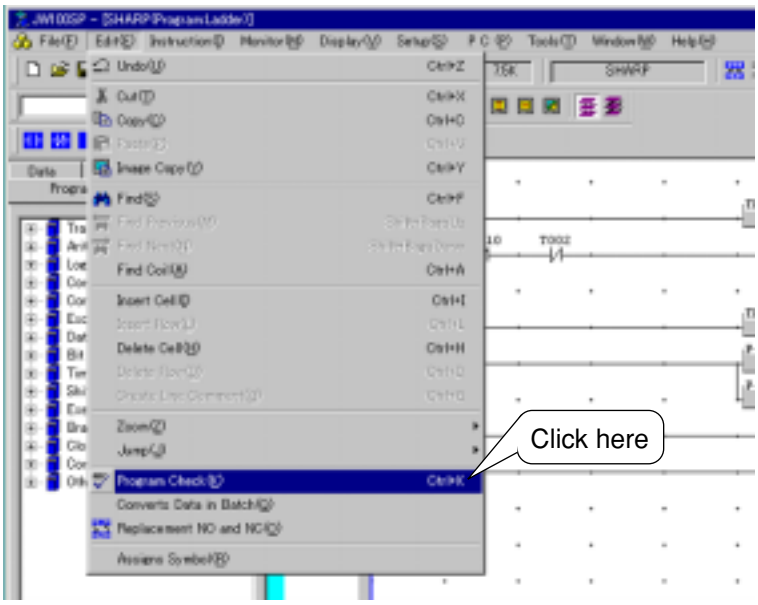
39.If you click [OK] button, F-40 [END] instruction will be input.

■ Program Check and Conversion to Mnemonic

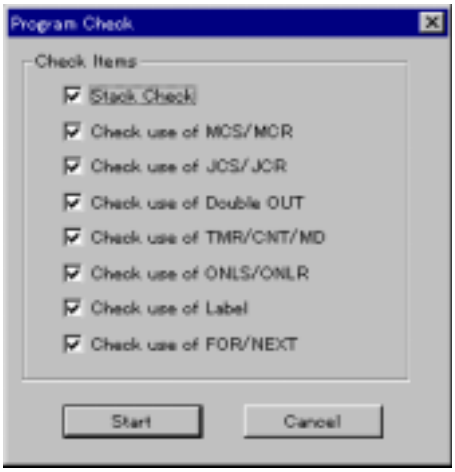
Check the created ladder program and execute conversion of ladder to the mnemonic.



40. Click [Edit]-[Program Check] of the menu bar.

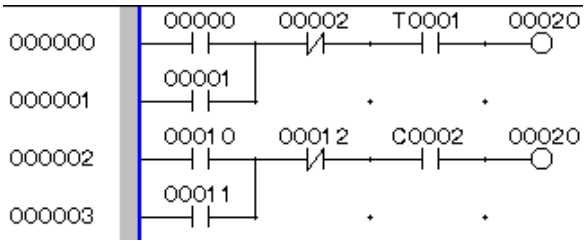


41. [Program Check] dialog box will be displayed, and click the appropriate item to mark the check mark. Here all check marks are checked.

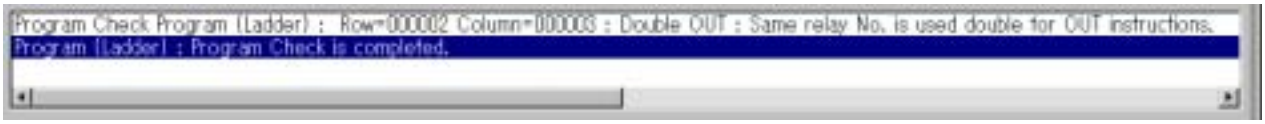


42. If you click [Start] button, the program check will start, and if there is a program error, an error information at the message window will be displayed.

(Example of the program error)

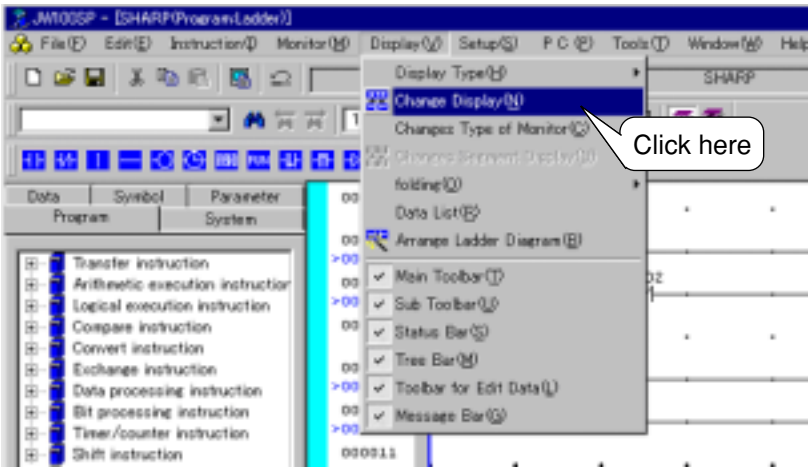


←Over-using the output 00020 twice


Program Check Program (Ladder) : Row=000002 Column=000003 : Double OUT : Same relay No. is used double for OUT instructions.
Program (Ladder) : Program Check is completed.

If you execute the program check, it will also execute the conversion to the mnemonic at the same time. If there is an error like the disconnected circuit, an error information at the [Compile error] dialog will be displayed.If an error occurs, modify correctly the program.

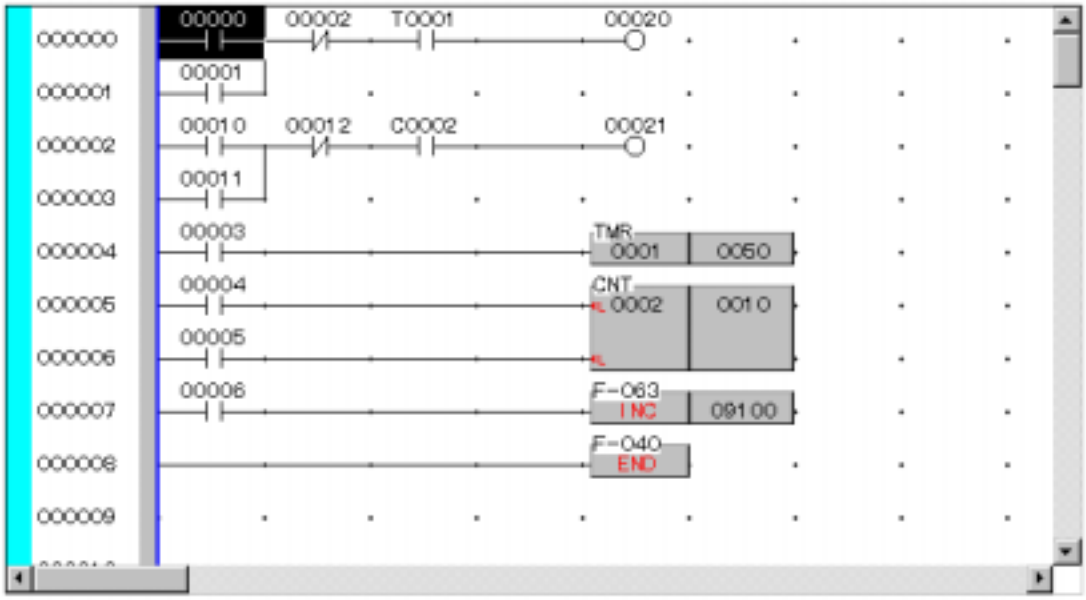
43. If you click [Display]-[Change Display] of the menu bar, it will change to the mnemonic program display.



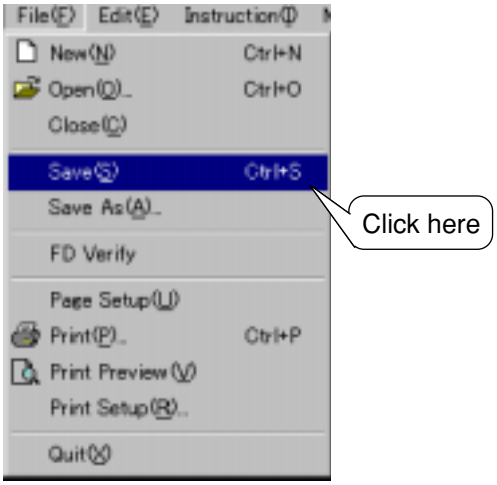
000000	STR		00000
000001	OR		00001
000002	AND NOT		00002
000003	AND	TMR	0001
000004	OUT		00020
000005	STR		00010
000006	OR		00011
000007	AND NOT		00012
000010	AND	CNT	0002
000011	OUT		00021
000012	STR		00003
000013	TMR		0001
000014			0050
000015	STR		00004
000016	STR		00005
000017	CNT		0002
000020			0010
000021	STR		00006
000022	F-063		INC
000023			09100
000024	F-040		END
000025	NOP		

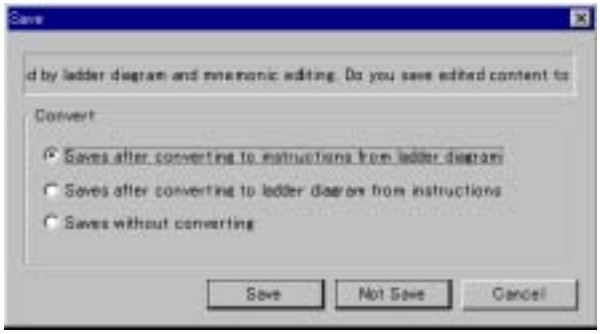
Reference If you click the button of the toolbar for editing ladder at the time when the ladder program display is being displayed, the conversion from ladder to mnemonic will take place. However, the "program check"will not be executed.

44. If you click of the toolbar for editing mnemonic, the conversion from mnemonic to ladder will take place. If you click [Display]-[Change Display] of the menu bar right after, the ladder program that is optimized to fit the window size will be displayed.



45. If you click [File]-[Save] of the menu bar, the dialog box to save the file will be displayed. Click [Save] to save the program you have created.

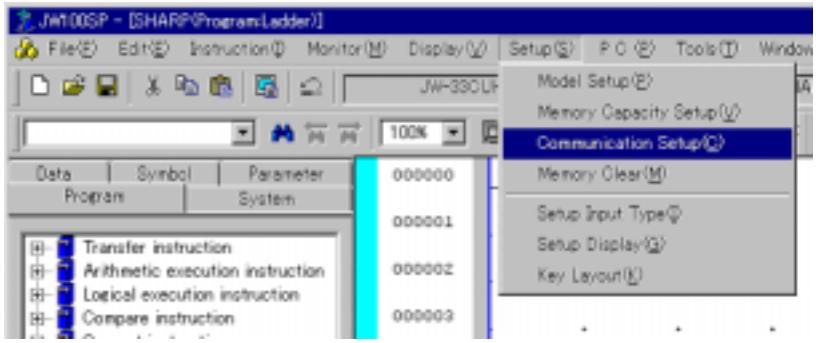




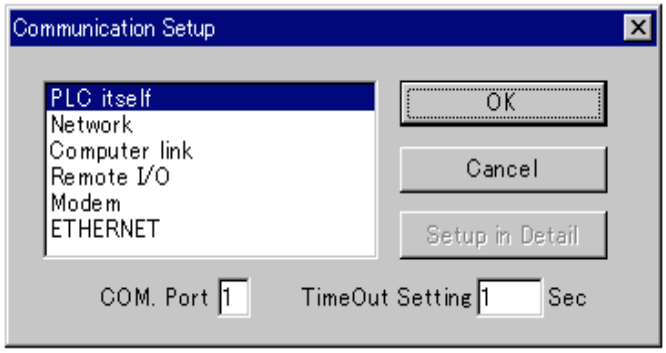
4-3 PC Transfer/Monitor

Transfer the created ladder program to PC (JW-33CUH1), and execute the monitoring of data.

1. Click [Setup]-[Communication Setup] of the menu bar.



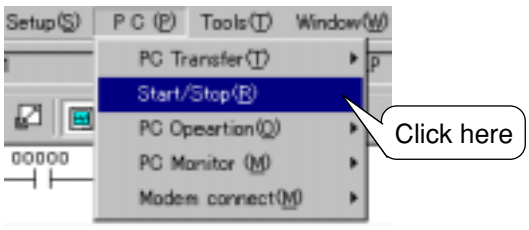
2. [Communication Setup] dialog box will be displayed, and select [PC itself]. Match the port number of [COM.Port] to the port number of the personal computer.

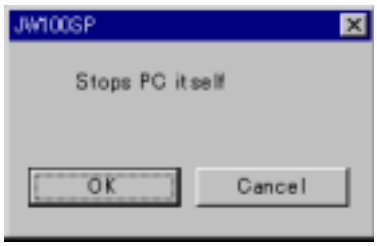


3. If you click [Setup in Detail] button, [Setup COM Baud Rate] dialog box will be displayed.

4. Select“high speed (115.2kbps)”. After clicking [OK] button, click [OK] button at [Communication Setup] dialog box, and the setup communication will be completed.

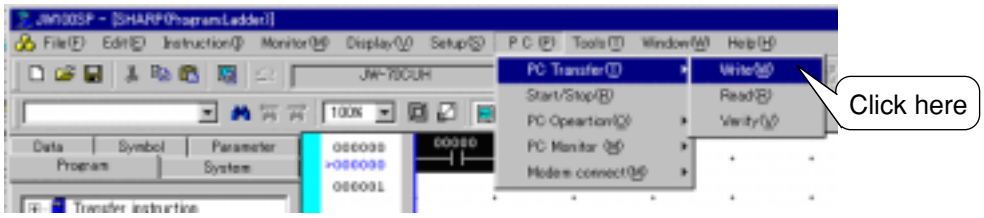
5. When the PC is running, stop the PC. Click [PC]-[Start/Stop] of the menu bar, and the following dialog box will be displayed.



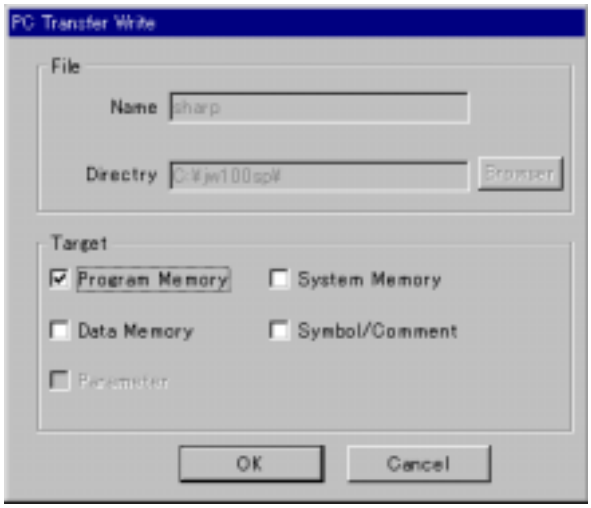


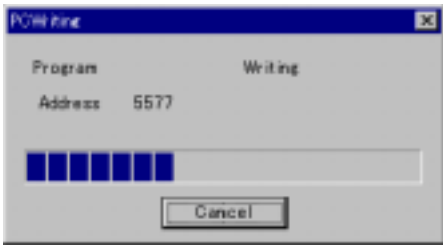
6. Click [OK] button. Verify that it has been stopped at the RUN lamp of the PC.

7. Click [PC]-[PC Transfer]-[Write] of the menu bar.

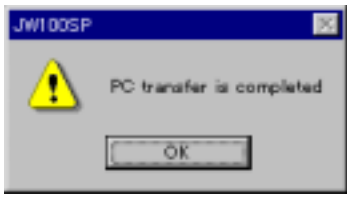


8. [PC Transfer Write] dialog box will be displayed, and check“Program Memory”. If you click [OK] button, it will start the transfer (Here, only the program is being transferred.)

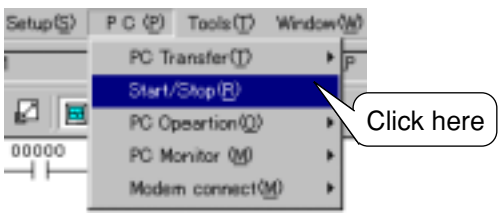


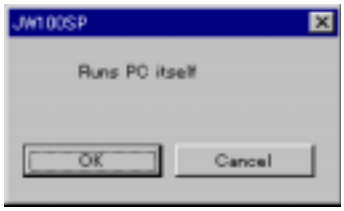


9. When the transfer is completed, the following dialog box will be displayed, and click [OK] button.



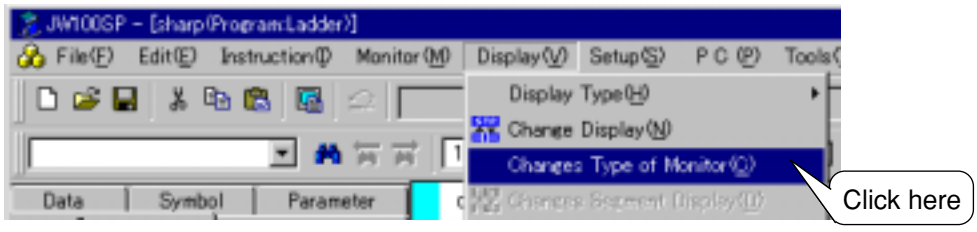
10. Click [PC]-[Start/Stop] of the menu bar, the following dialog box will be displayed.





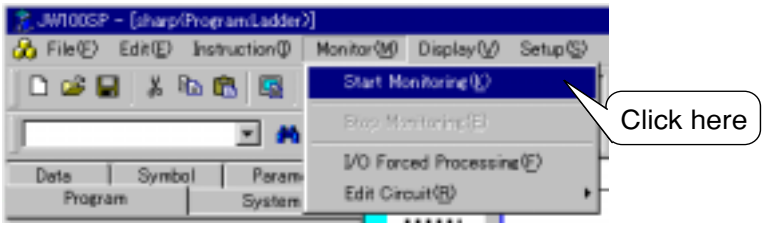
11. Click [OK] button. Verify that it has been running at the RUN lamp of the PC.

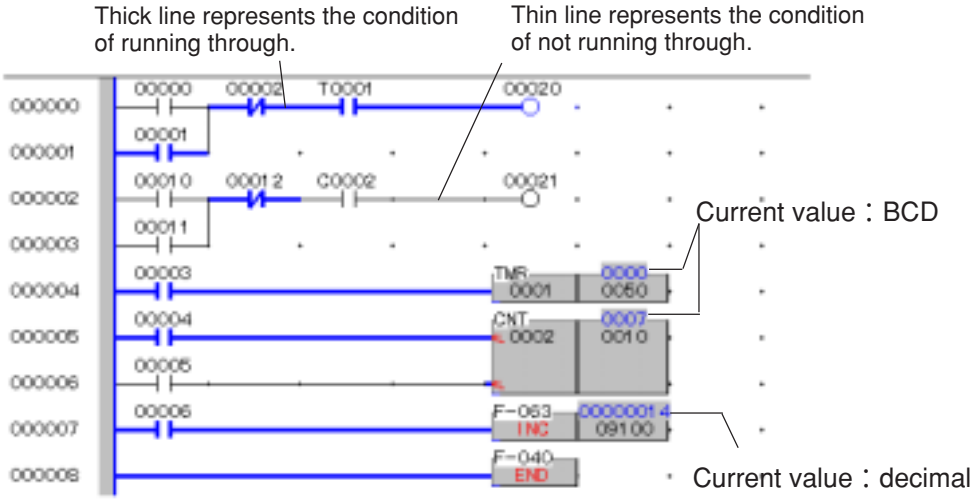
12. Click [Display]-[Changes Type of Monitor] of the menu bar.



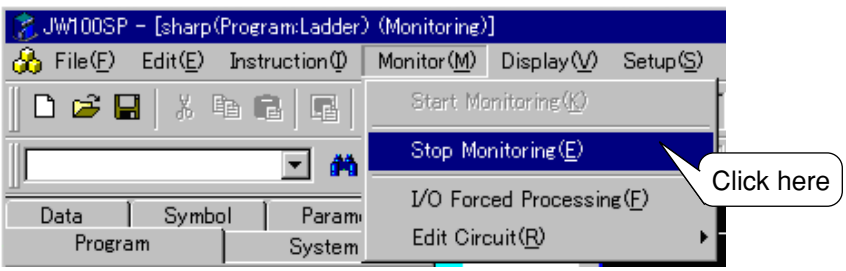
13. [Setup Monitor Display Mode] dialog box will be displayed, and setup as the following. Click [OK] button.

14. If you click [Monitor]-[Start Monitoring] of the menu bar, the ladder monitor will start.




Thick line represents the condition of running through.
Thin line represents the condition of not running through.
Current value：BCD
Current value：decimal

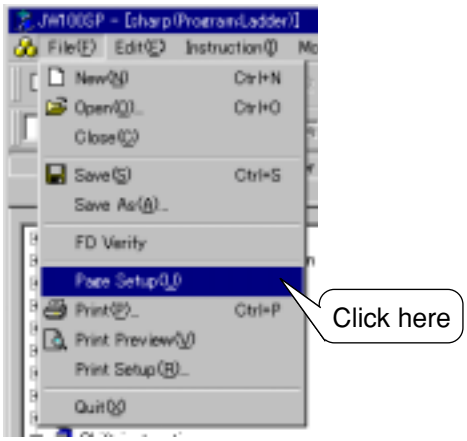
15. If you click [Monitor]-[Stop Monitoring] of the menu bar, the ladder monitor will stop.



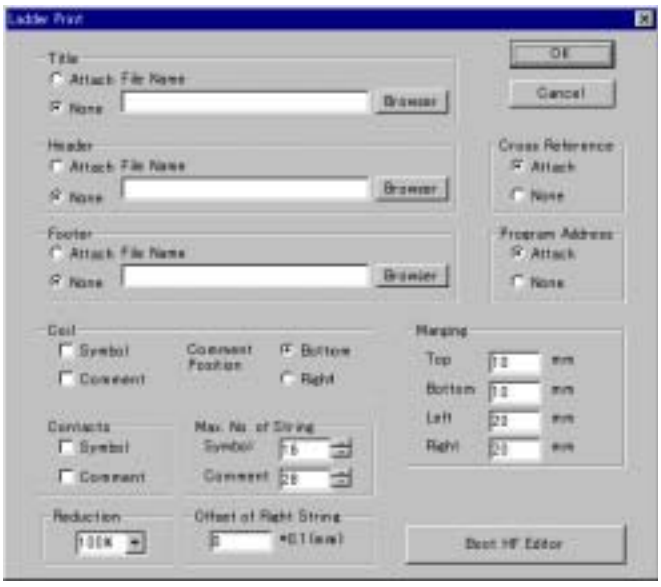
4-4 Print

Print the created ladder programs.

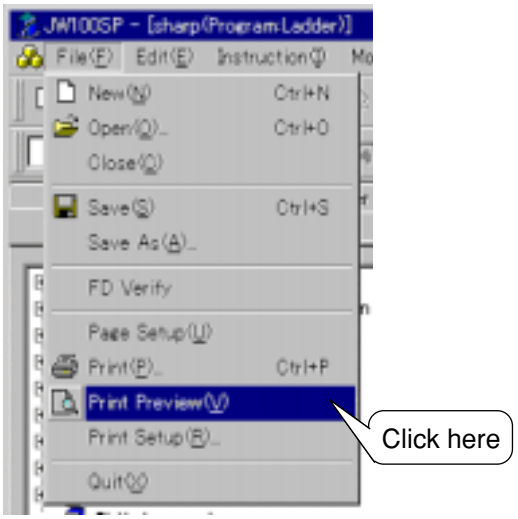
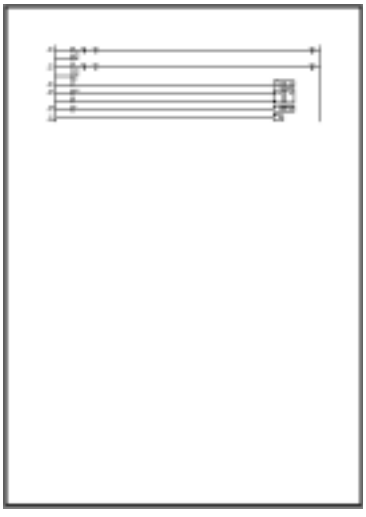
1. Click [File]-[Page Setup] of the menu bar.



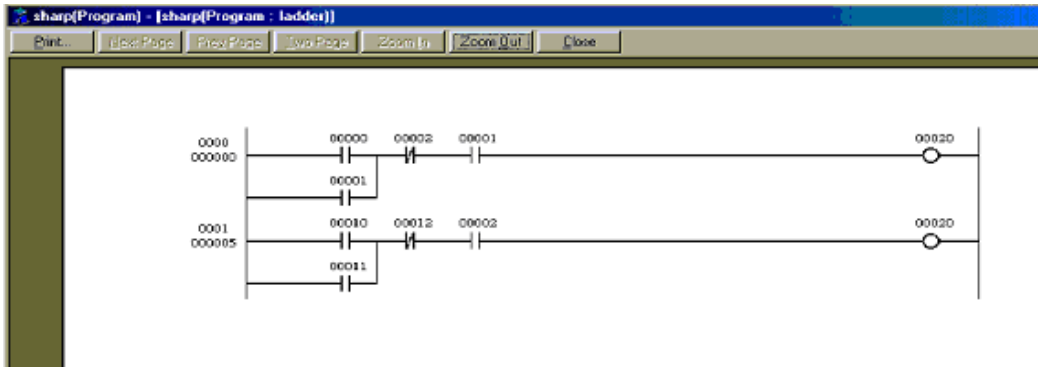
2. [Ladder Print] dialog box will be displayed, and change the setups according to each needs. Here, we setup the following, and click [OK] button.



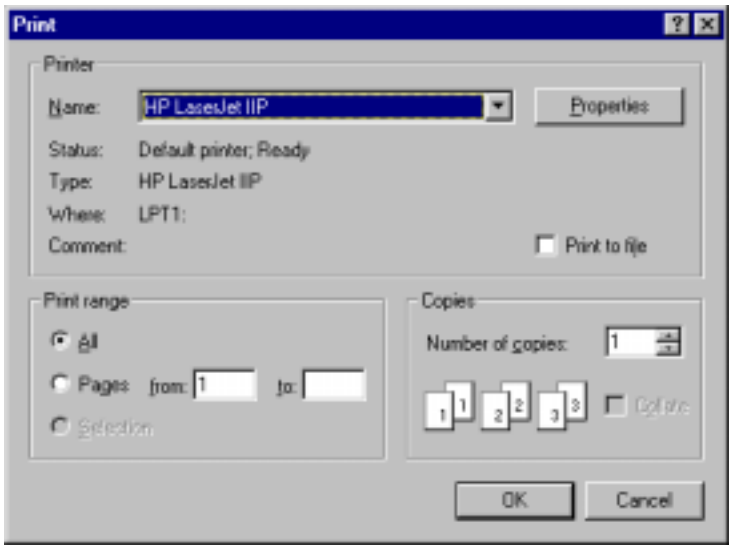
3. If you click [File]-[Print Preview] of the menu bar, the print image will be displayed.



Clicking [Zoom In] button makes the display larger, and clicking [Zoom Out] button will make the display smaller.

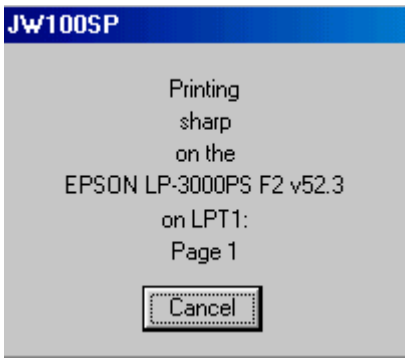


4. If you click [Print] button, [Print] dialog box will be displayed.

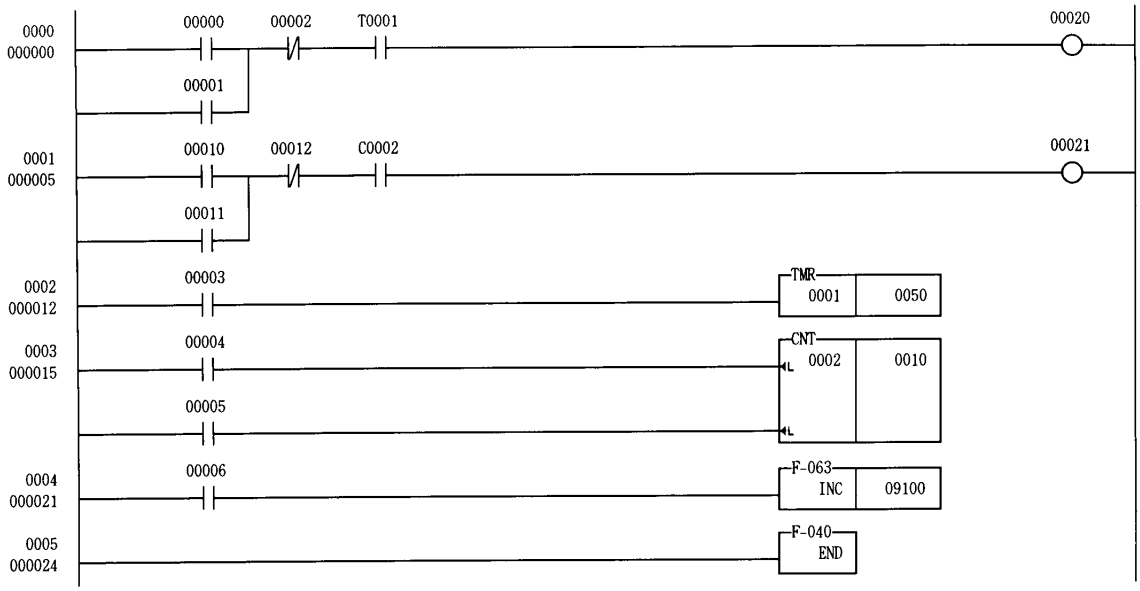


5. Click [Properties] button, and after changing the setup according to the need, click [OK] button.

6. If you click [OK] button at the [Print] dialog box, it starts printing.



■ The Print Example

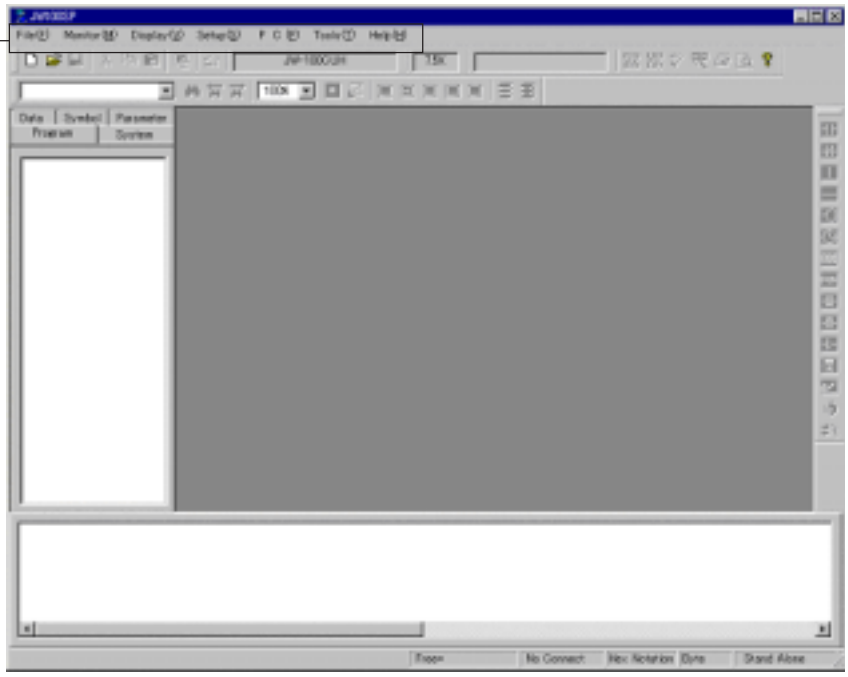


Chapter 5 Menu Operation

The operation of each menu of the menu bar of the main window and the basic window (program:ladder/ program:mnemonic/system/data/symbol/parameter) are explained.
The menu bar varies according to the window.

・Main Window

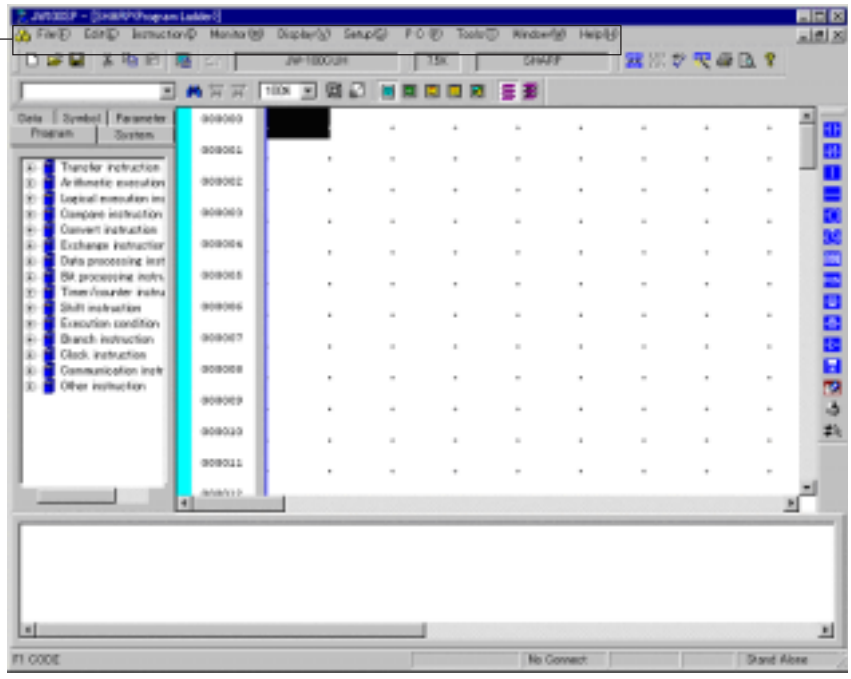
Menu Bar



File(F)	Monitor(M)	Display(V)	Setup(S)	P C (P)	Tools(T)	Help(H)
(Details in pages) 5-3	5-30	5-31	5-46	5-59	5-73	5-82

・[Program: Ladder] window

Menu Bar



File(F)	Edit(E)	Instruction(I)	Monitor(M)	Display(V)	Setup(S)	P C (P)	Tools(T)	Window(W)	Help(H)
(Details in pages) 5-3	5-12	5-29	5-30	5-31	5-46	5-59	5-73	5-76	5-82

・ Menu bar of [Program : Mnemonic] window

(Details in pages)	5-3	5-12	5-29	5-30	5-31	5-46	5-59	5-73	5-76	5-82

・ Menu bar of [System/Data/Parameter] window

(Details in pages)	5-3	5-12	5-30	5-31	5-46	5-59	5-73	5-76	5-82

・ Menu bar of [Symbol] window

(Details in pages)	5-3	5-12	5-31	5-46	5-59	5-73	5-76	5-82

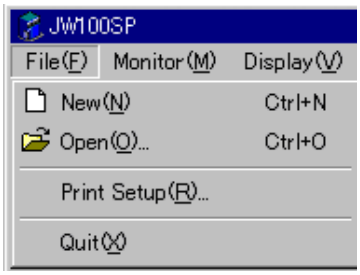
5-1 File (Main/Program/System/Data/Symbol/Parameter)

If you click [File] at the menu bar of each window, [File] menu summary will be displayed.

・Main

(Details in pages)

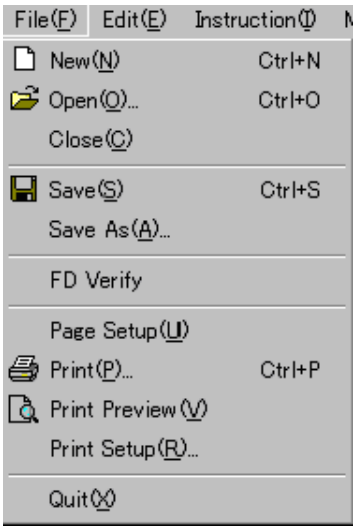
5-4
5-6
5-9
〃



・Program/System/Parameter

(Details in pages)

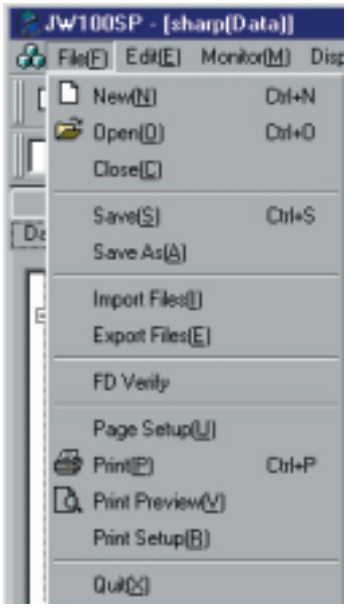
5-4
5-6
5-7
5-8
〃
5-9
〃
〃
〃
〃
〃



・Data/Symbol

(Details in pages)

5-4
5-6
5-7
5-8
〃
5-11
5-10
5-9
〃
〃
〃
〃
〃



■ New (Main/Program/System/Data/Symbol/Parameter)

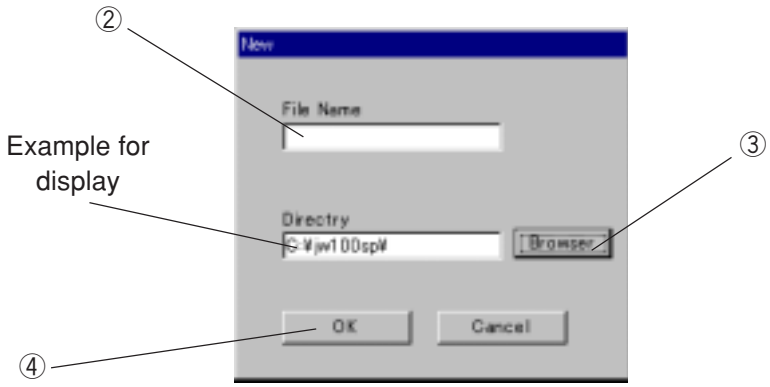
(1) Function

Create a new file.

(2) Operation content

① Click [File]-[New] from the menu bar

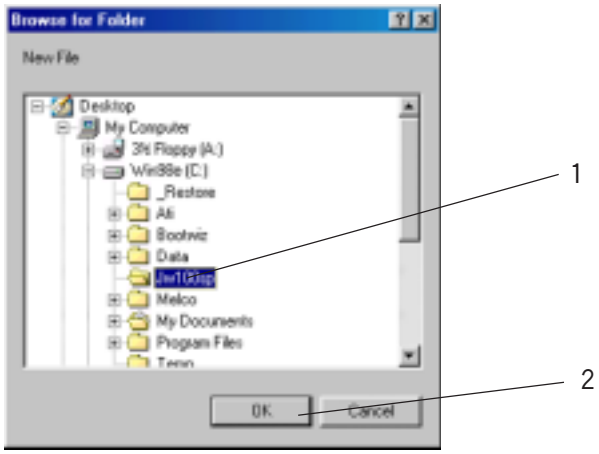
⇒ [New] dialog box will be displayed.



② Input the file name.

③ Determine the folder where you will create the file.

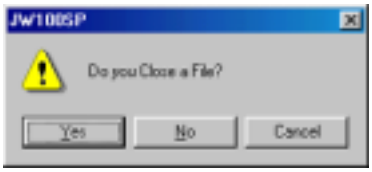
Click [Browse]. and the [Browse for Folder] dialog box will be displayed.



1. Select the folder.
2. Click [OK].

Notes

・ This software cannot open more than one files at the same time. If you try to create a new file while another file is open, a message "Do you close a File?" will be displayed.



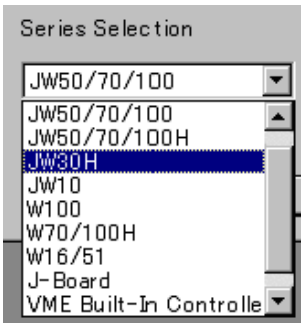
⇒ If you click [No], JW-100SP starts.

⇒ If you click [Yes], the dialog box to save the current file will be displayed. After saving the file, you can create a new file in the [New] dialog box.

④ Click [OK] of [New] dialog box
⇒ The [Select PC Model] dialog box will be displayed.

⑤ Setup the model

1. Click [▼] of select series
⇒ series summary will be displayed.



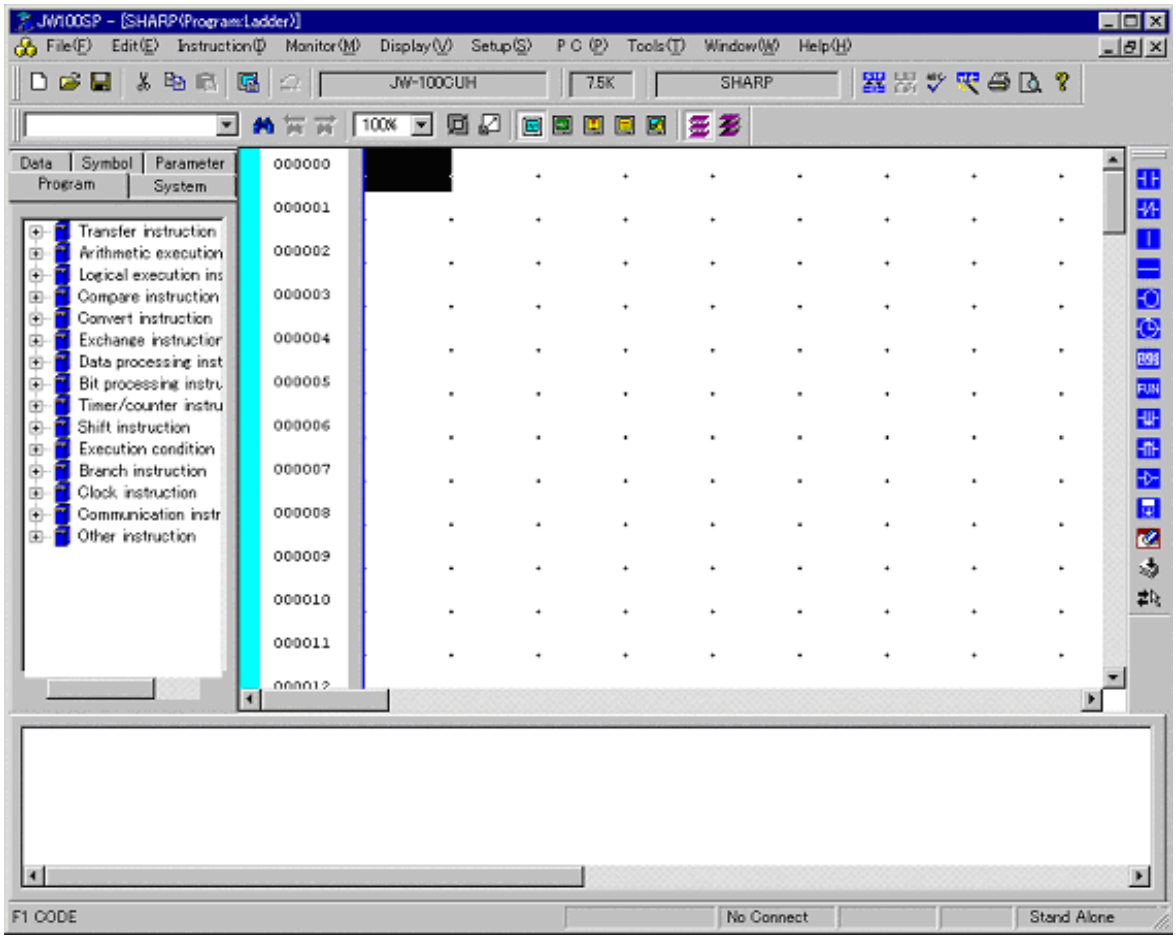
2. Click the series name that you are going to select.
⇒ Selected model summary of the series will be displayed under "Model Selection" chart.

Series Selection	Model Selection	Remark
JW20/20H	JW-21CU(H),JW-22CU(H)	————
JW50/70/100	JW-100CU,W-50CU,JW-70CU	————
JW50/70/100H	JW-100CUH,JW-100CUH (Expansion relay) JW-50CUH,JW-70CUH	————
JW30H	JW-31CUH,JW-31CUH1 JW-32CUH,JW-32CUH1(15.5K) JW-32CUH1(31.5K),JW-32CUM1 JW-33CUH,JW-33CUH1 JW-33CUH2,JW-33CUH3	・Select JW-32CUH1 for JW-32CUM1.
JW10	JW-1324K/1342K JW-1424K/1442K JW-1624K/1642K	————
W100	ZW-1K0CU/1CU/2CU/3CU	————
W70/100H	ZW-1HCU,ZW-70CU	————
W16/51	ZW-160CU ZW-501CU/CU2/CU3	————
J-board	Z-311J/312J/313J Z-511J,Z-512J	・Select JW-32CUH1 for Z-512J.
VME Built-in Controller	JW-32CV1/32CV2	————
All	All models (displayed above)	————

・The setup of the model at the time of shipment is JW100H(JW-100CUH).

3. Click the model name that you are going to select.
⇒ The model that is selected at "Current Model" chart will be displayed.
4. Click [OK]
⇒ Windows will be created in order, and the whole screen of the ladder window will be displayed at the end.(refer to the next page)

・Display example of ladder window



■ Open (Main/Program/System/Data/Symbol/Parameter)

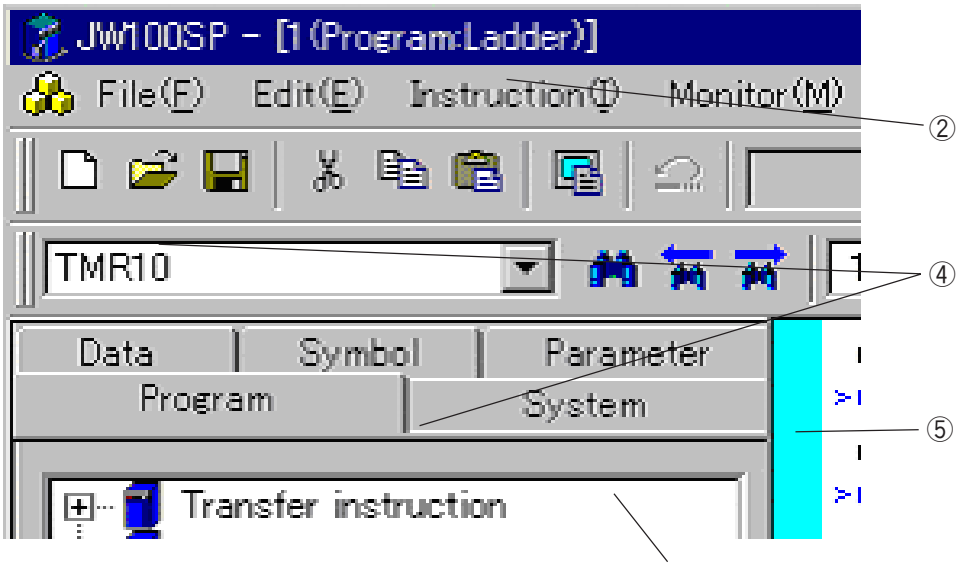
(1) Function

Open the existing file (program, system memory, data memory, symbol/comment, parameter).

(2) Operation content

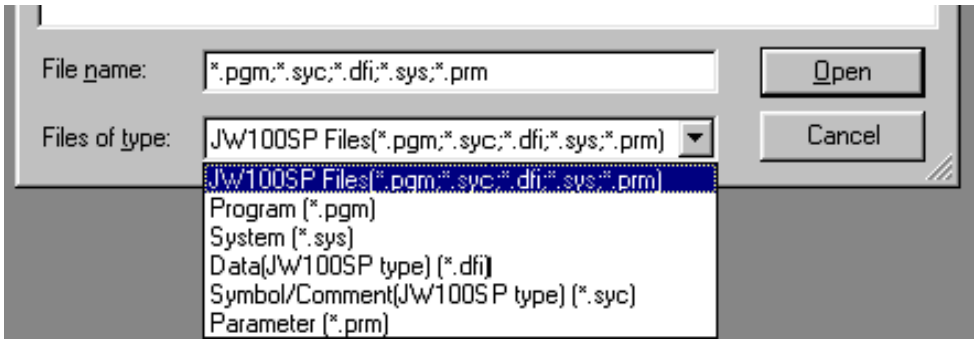
① Click [File]-[Open] from the menu bar

⇒ [Open] dialog box will be displayed.



(Example for display)

② Select the directory at "Look in"
③ Select the kind at "Files of type" box



File Type
JW100SPfile (*.pgm, *.syc, *.dfi, *.sys, *.prm), Program(*.pgm), System(*.sys), Data(JW100SP type)(*.dfi), Symbol/Comment(JW100SP type)(*.syc), Parameter(*.prm)

・For classification and extension of the file, refer to the page 3-3.

④ Select the reading file
⇒ file that was selected at "File name" chart will be displayed.
⑤ Click [Open]
⇒ open the window of the selected file

Notes

・In JW-100SP, you can open only one file per file type: Program, System, Data, Symbol, and Parameter. Also, by selecting the tab of the tree bar, you can change the windows.

■ Close (Program/System/Data/Symbol/Parameter)

Close the window of the opened file (Program/System/Data/Symbol/Parameter).
A conformation dialog box to save the file will be displayed before closing the window if the file has been modified.

・If you close the window without saving, all modified content after it was last saved will be lost.

■ Save (Program/System/Data/Symbol/Parameter)

Save the currently active file without changing its name or its saved place.

If the file has been modified after it was saved last time, the confirmation dialog box will be displayed.

・If you are saving by changing the name and the place of the saved file, use [Save As] of the [File] menu.

■ Save As (Program/System/Data/Symbol/Parameter)

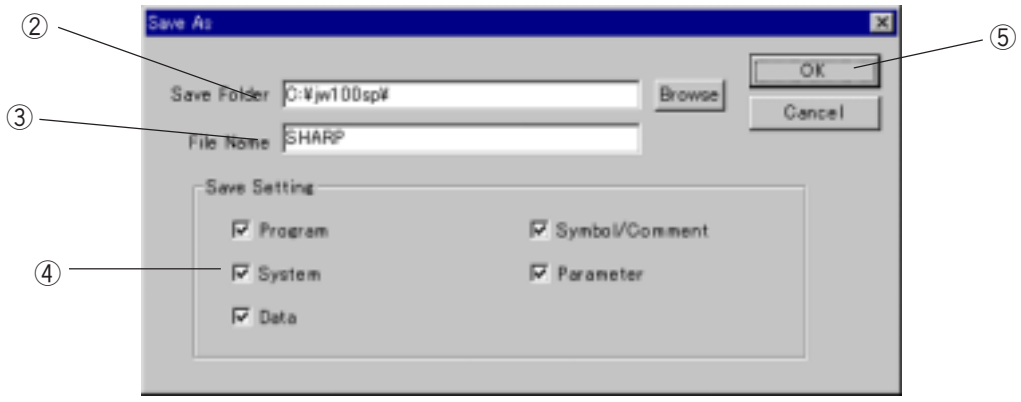
(1) Function

Save the currently operating file by putting a new name.

(2) Operation content

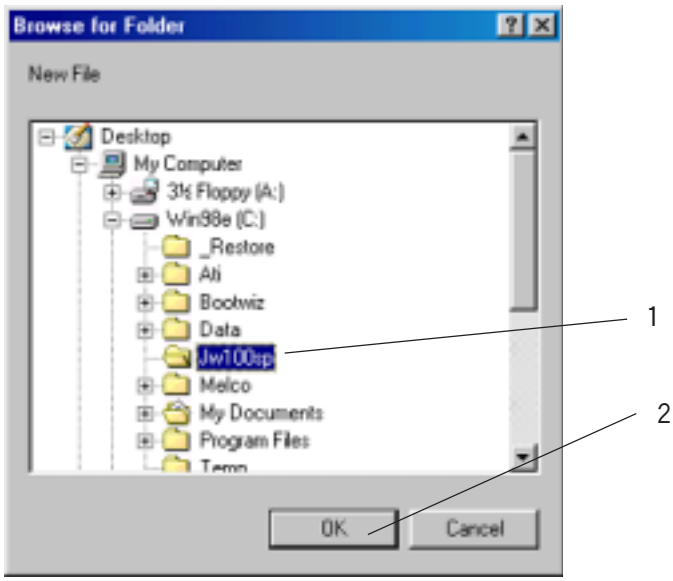
① Click [File]-[Save As] from the menu bar.

⇒The [Save As] dialog box will be displayed.



② Determine the folder where you will save the file.

⇒Click [Browse]. and the [Browse for Folder] dialog box will be displayed.



1. Select the directory.
2. Click [OK].

③ Input the file name.

④ Select the file type.

⑤ Click [OK].

⇒The file will be saved.

■ FD Verify (Program/System/Data/Symbol/Parameter)

Verify the files in operation with the files saved in the hard disk or floppy disk.

■ Page Setup (Program/System/Data/Symbol/Parameter)

Setup the format of the page for printing..

⇒ For details, refer to "Chapter 9 Print."

■ Print Program (Program/System/Data/Symbol/Parameter)

Print the content of the open window.

⇒ For details, refer to "Chapter 9 Print."

■ Print Preview (Program/System/Data/Symbol/Parameter)

Display the content of the open window as if printing.

⇒ For details, refer to "Chapter 9 Print."

■ Printer Setup (Main/Program/System/Data/Symbol/Parameter)

Setup the selection and the connection of the printer.

⇒ For details, refer to "Chapter 9 Print."

■ Quit (Main/Program/System/Data/Symbol/Parameter)

Quit JW-100SP.

A confirmation message will appear as to save the modified file before quitting the operation.

・If you close the window without saving, all contents that were modified since the last saving will be lost.

■ Export Files (Data/Symbol)

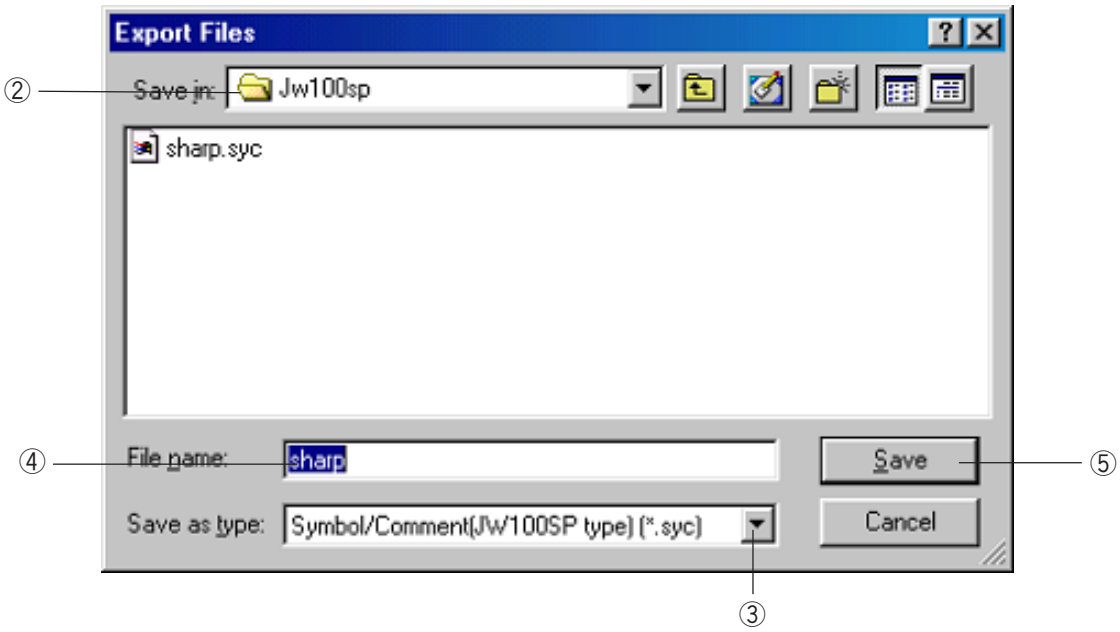
(1) Function

Save the file about data memory or symbol/comment, specifying the file format.

(2) Operation

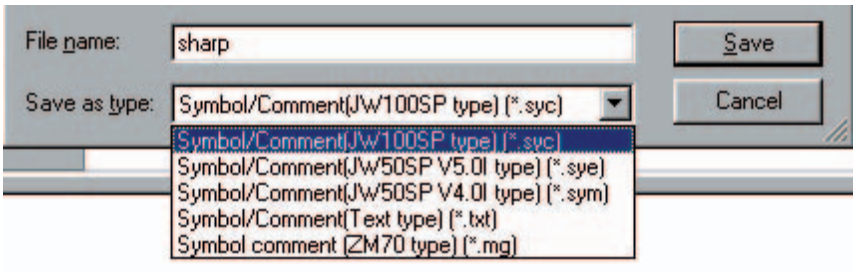
① Click [File]-[Export Files] from the menu bar.

⇒ The [Export Files] dialog box will be displayed.



② Determine the folder where you will save the file.

③ Select the file type.



File Type	File Format
Data memory	Data JW100SP type(*.dfi), Data JW50SP type(*.dat), File JW50SP type(*.fil)
Symbol/Comment	JW100SP type(*.syc), JW50SP V5.0 type(*.sye), JW50SP V4.0 type(*.sym), Text type(*.txt), ZM70 type(*.mg)

- For the detail of file type and extension, refer to page 3-3.

④ Input the file name.

⑤ Click [Save].

⇒ The file will be saved.

■ Import Files (Data/Symbol)

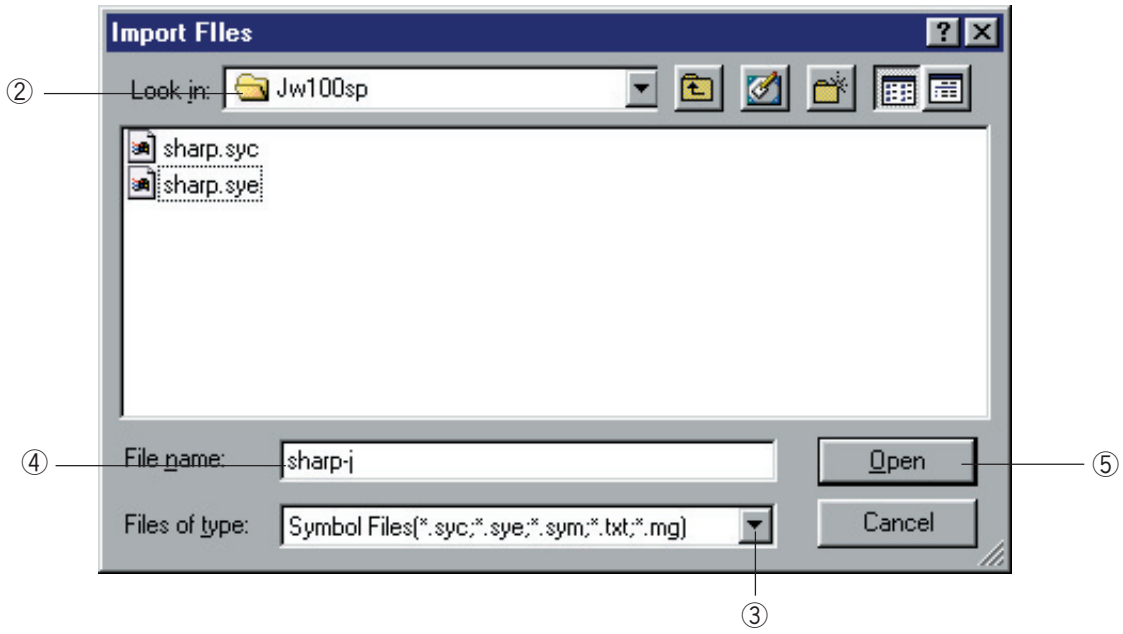
(1) Function

Import the file about data memory or symbol/comment.

(2) Operation

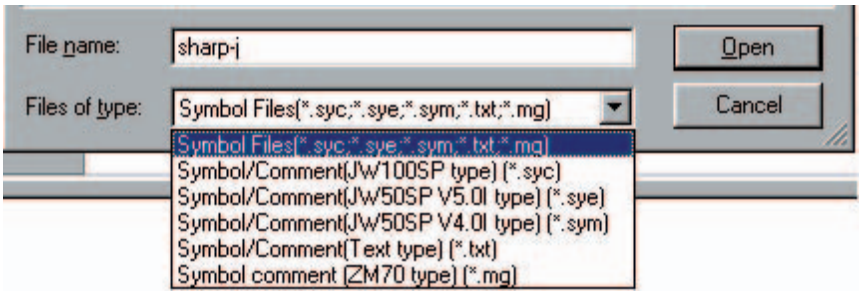
① Click [Import Files] of the [File] menu.

⇒ The [Import Files] dialog box will be displayed.



② Determine the folder where the file you will import is located.

③ Select the file type.



File Type	File Format
Data memory	(*.dfi, *.dat, *.fil) Data JW100SP type(*.dfi), Data JW50SP type(*.dat), File JW50SP type(*.fil)
Symbol/Comment	(*.syc, *.sye, *.sym, *.txt, *.mg) JW100SP type(*.syc), JW50SP V5.0 type(*.sye), JW50SP V4.0 type(*.sym), text, ZM70 type(*.mg)

- For the detail of file type and extension, refer to page 3-3.

④ Input the file name.

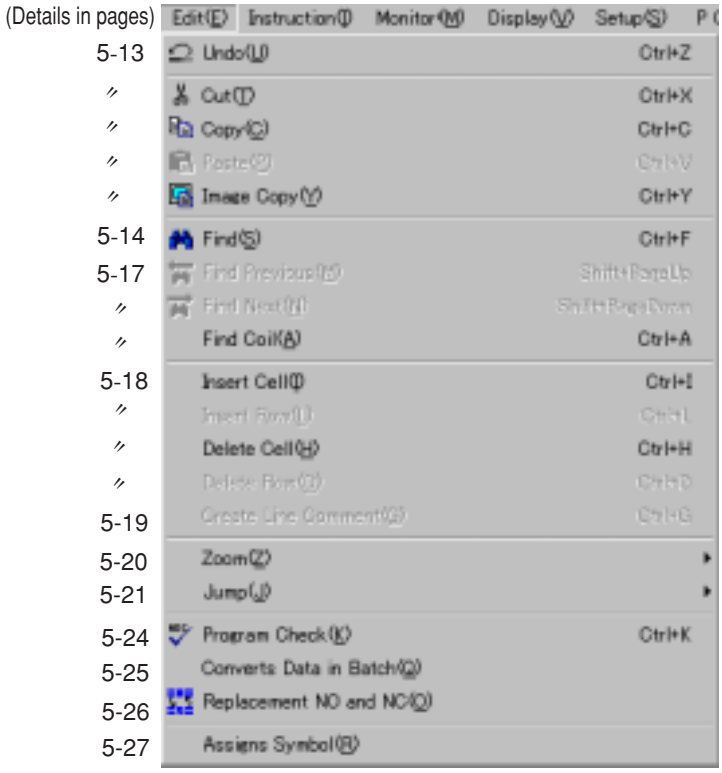
⑤ Click [Save].

⇒ The file will be imported.

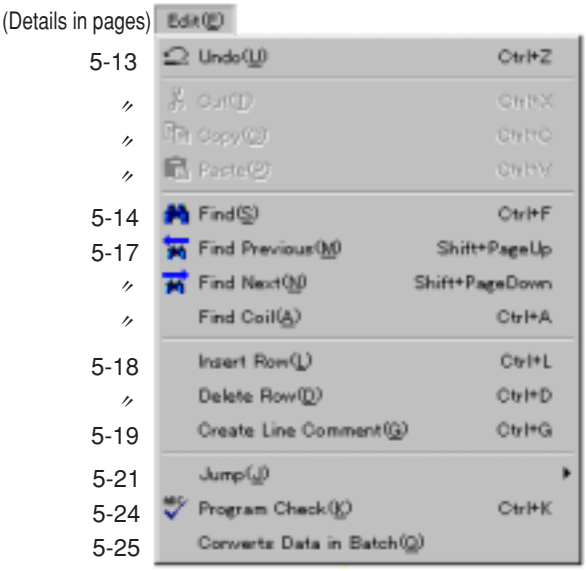
5-2 Edit (Program/System/Data/Symbol/Parameter)

If you click [Edit] at the menu bar of each window, the edit menu summary will be displayed.

・Program：Ladder

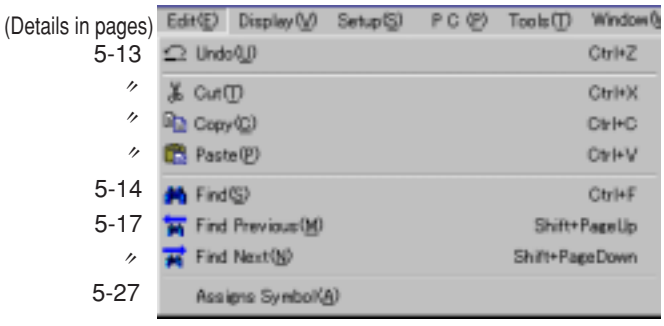


・Program：Mnemonic



・System/Data/Parameter

・Symbol



Undo (Program/System/Data/Symbol/Parameter)

Cancels the editing that has just been executed, and bring back the same cell /row as before.

・According to the operation content, there are items that you can not cancel.

Cut (Program/System/Data/Symbol/Parameter)

Delete the selected cell/row and saves it momentary.

・Assign the cutting area before executing this operation.

・If you cut the cell/row, the content that was momentary saved will be replaced by the new content.

・In the program (ladder) window, the OR line (vertical) within the area will be out, but the OR line on the area will remain.
Also, you can not cut the part of the instruction such as the application instruction that uses several cells.

・In windows of system /data /parameter, only the data in the selected area will be 0 cleared. however, in case of the system window, there is a part of the area you can not cut.

・In the symbol window, you can delete only the symbol/comment in the selected area.

・Refer to pages 6-24 to 6-25 (moving circuit) for the use example of the program (ladder) window.

Copy (Program/System/Data/Symbol/Parameter)

Copy the selected cell /row, and saves it momentary.

・Assign the copying area before executing this operation.

・If you copy the cell /row, the content that was momentary saved will be replaced by the new content.

・In the program (ladder) window, the OR line (vertical) within the area will be copied, but the OR line on the area will not be copied.
Also, you can not copy the part of the instruction such as the application instruction that uses several cells.

・In windows of system/data/parameter, only the data in the selected area will be saved momentary.

・In the symbol window, you can save only the symbol/comment momentary in the selected area.

・Refer to pages 6-23 (copying circuit) for the use example of the program (ladder) window.

Paste (Program/System/Data/Symbol/Parameter)

Paste the momentary saved content from "cut"/"copy" operations to the assigned position.

・Complete "cut"/"copy" operations before executing this operation.

・When pasting, select "cell" if the saved content is cell, and select "row" if the saved content is row.

・In system /data /parameter window, data of the selected address will be replaced withthe momentary saved data by "cut"/"copy" operations.
However, in case of the system window, there is a part of the area you can not paste.

・In the symbol window, the symbol/comment of the selected address will be replaced with the mo mentary saved symbol/comment by "cut"/"copy" operations.

・Refer to pages 6-23 (copying circuit) for the use example of the program (ladder) window.

Image Copy (Program Ladder)

Save the ladder program as an image file of the bitmap format in the clipboard.

・You can paste it in the Excel or Word document.

■ Find (Program/System/Data/Symbol/Parameter)

Assign the character line (address, instruction, symbol) in the selected file, and search.
There are two types of search methods: "Find for the first time" and "Find continuously."

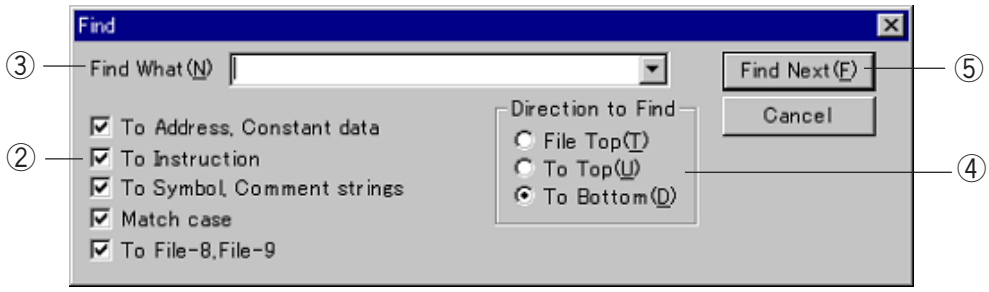
[1] Find for the First Time

When searching a character string for the first time, input it in the [Find] dialog box. When the dialog box appears, the address or data of the selected area of the current file is automatically input in the [Find What] area.

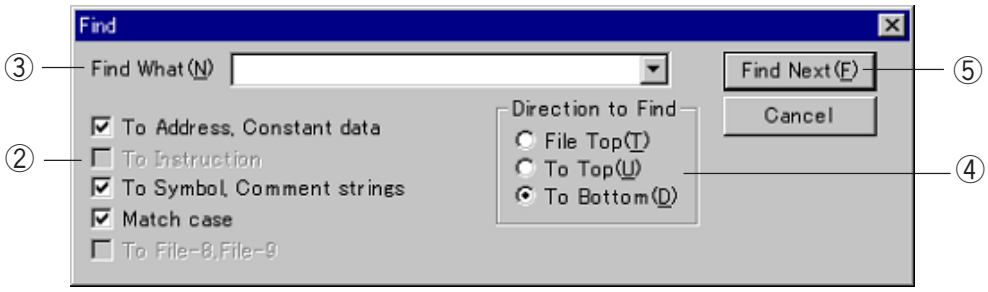
(1) Operation content

① Click [Find] of the [Edit] menu. (Refer to the page 5-12)
⇒ [Find] dialog box will be displayed.

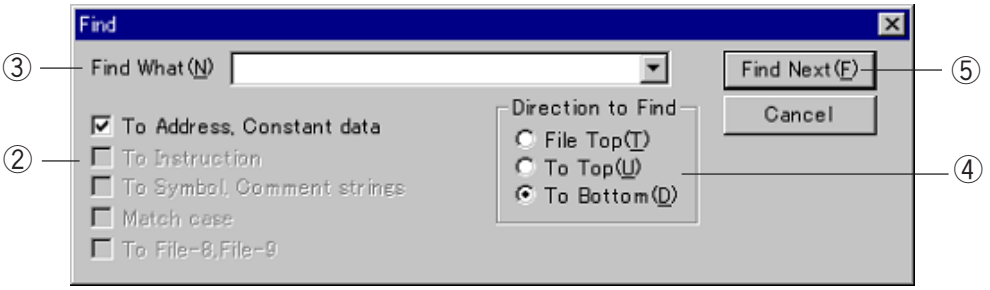
・Program



・System/Data/Symbol



・Parameter



② Select of "Item to find"

According to the operation window, the object of search varies. (You cannot search the item other than search objects.)

Item to find	Program	System	Data /Symbol	Parameter
Address, Constant	Relay,Register	System memory	Relay,Register	Parameter
Instructions	STR, AND, etc.	—	—	—
Symbol/ Comment	Symbol, Comment, Line comment	Comment	Symbol, Comment	—
Distinguish the uppercase and lowercase	Symbol, Comment, Line comment	—	Symbol, Comment	—
File 8, 9	Search without distinguishing file 8 and 9	—	—	—

③ Input the strings

Item to find	The input content of the character line
Address Constant (Relay, Register, Setting value)	· When inputting the character line, there aren't any distinctions between the upper or lower case characters. · When the high figure of the number is 0, like the relay address, you can omit the zero.. (Example) 1. The valid character line when finding relay 00122 122, 00122 2. The valid character line when finding register]0123]123 (] of bracket) 3. The valid character line when finding register 89001 89001
Instructions	· When inputting the character line, there aren't any distinctions between the upper or lower case characters. · When the high figure of the number is 0, like the relay address, you can omit the zero.. (Example) 1. The valid character line when finding STR 00123 STR00123, str00123, Str123 2. The valid character line when finding application instruction Fc012, Fc012, fc12
Strings (Symbol, Comment, Line comment)	· In the window other than the program one, uppercase and lowercase characters are always distinguished. · In the program window, you can define whether to distinguish uppercase and lowercase characters. (Example) The valid character line (window other than program) when finding symbol LS01 Program window: LS1, ls1, ls01 Other windows: LS1, LS01

④ Select search direction

From the beginning: Search from the beginning of the file.

To Top: Search from the cursor to the beginning of the file.

To Bottom: Search from the cursor to the end of the file.

⑤ Press the [Enter] key, or click [Find Next]

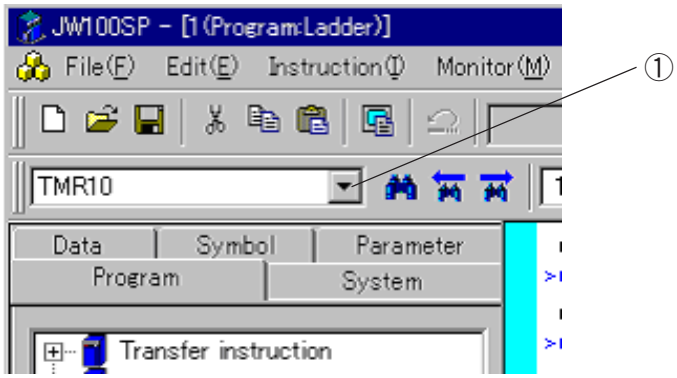
⇒ It starts finding, and the cursor moves to the found cell or row.

[2] Find Continuously

In case of finding the character line that was once found, use the "Find history."

・Once found character line will be added to the "Find history" combo box.

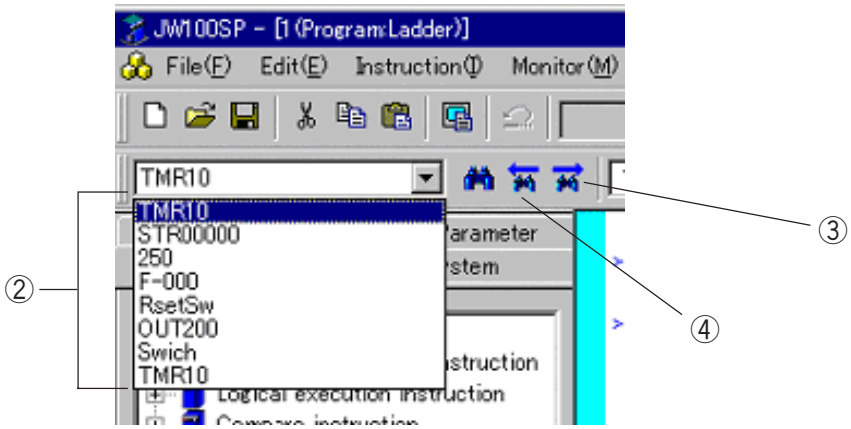
(1) Operation content



(Display example of the program)

① Click [▼] of the "Find history."

⇒ Display the once found character line summary.



② Click the character to find

⇒ It is displayed on the combo box of "Find history."

③ Click (Find next) or ④ (Find previous)

⇒ It starts finding.

・ "Find" is also executed when you click [Find Next] or [Find Previous] of the [Edit] menu.

Notes

・There are no limit in the number of the character lines stored in "Find history." Also, once stored character lines will not be deleted. When this software is terminated, all the character lines will be cleared.

■ Find Previous (Program/System/Data/Symbol/Parameter)

Find already assigned character lines towards forward in the selected file.

・Select the character line from "Find history" summary of the sub toolbar.

・Refer to the previous page for the operation method.

■ Find Next (Program/System/Data/Symbol/Parameter)

Find already assigned character lines backwards in the selected file.

・Select the character line from "Find historys" ummary of the sub toolbar.

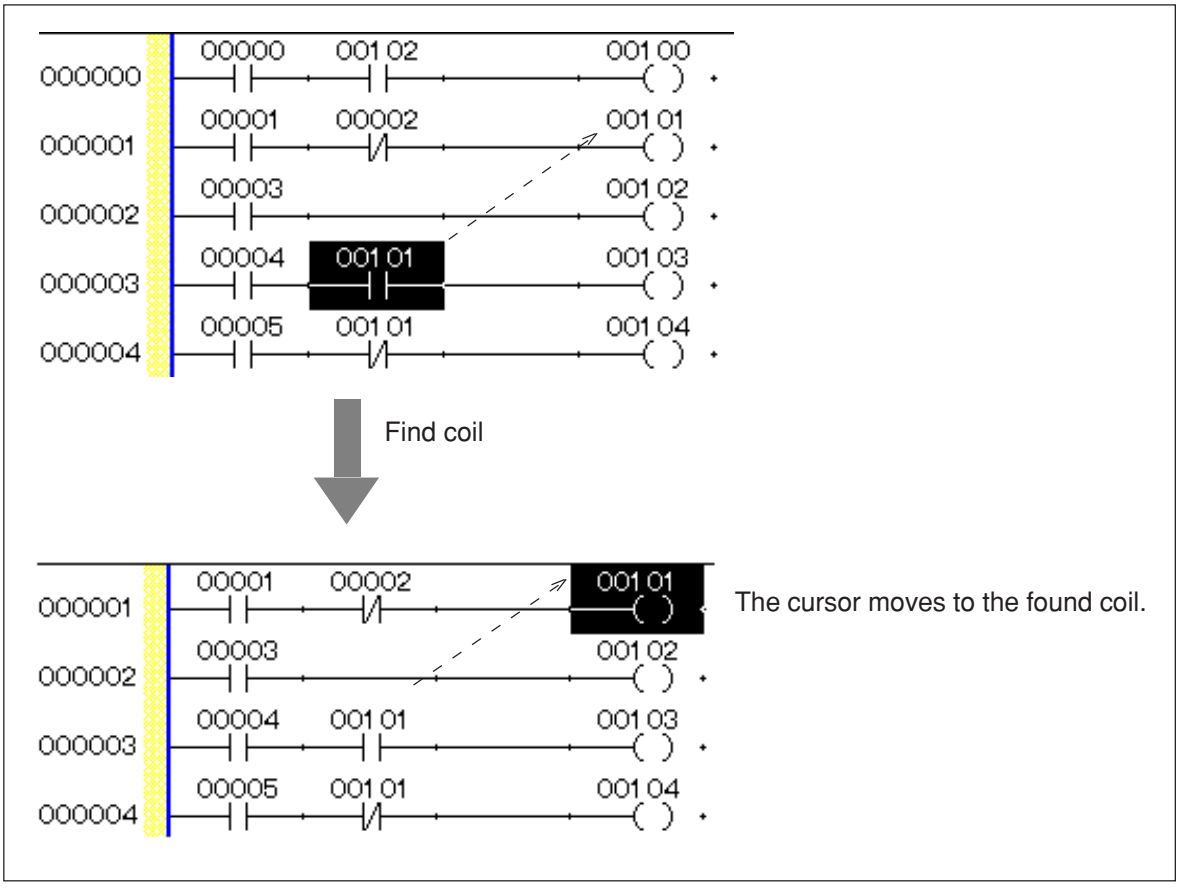
・Refer to the previous page for the operation method.

■ Find Coil (Program)

Find the output (coil) that uses the relay address of the cursor position in the selected file.

・It starts finding from the cursor position towards the gaining direction of the program address, and if nothing is found, it starts finding from the program address 0 to the cursor position.

(Find example)



■ Insert Cell (Program:Ladder)

Insert the cell in the assigned position.

- You can select several cells.
- All cells that are right of the inserted position will move to the right direction the same amount of columns of the cell inserted.
- Refer to the page 6-21 for the use example.

■ Insert Row (Program)

Insert the row in the assigned position.

- All rows that are below the inserted position will move down the same amount of the inserted rows.
- If there is an instruction like the counter instruction /application instruction that occupy several rows, you can not insert the row.
- Refer to the page 6-21 for the use example.

■ Delete Cell (Program:Ladder)

Delete the cell of the assigned position.

- You can select several cells.
- All cells that are right of the deleted position will move to the left direction the same amount of columns of the cell deleted.
- Refer to the page 6-20 for the use example.

■ Delete Row (Program)

Delete the assigned row.

- All rows that are below the deleted position will move upward the same amount of the deleted rows.
- If there is an instruction like the counter instruction /application instruction that occupy several rows, you can not delete the row.
- Refer to the page 6-22 for the use example.

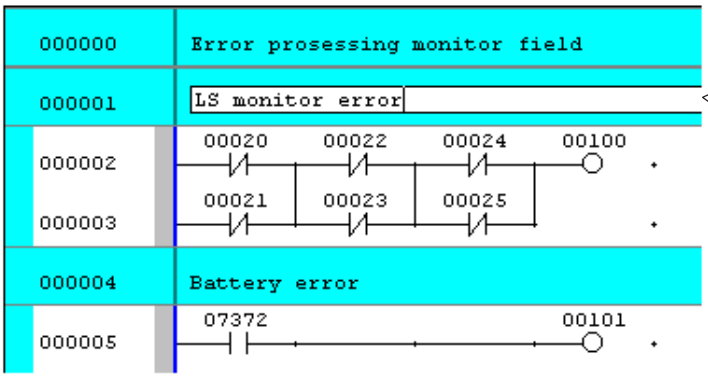
■ Create Line Comment (Program)

Make the assigned line to the line comment.

- An input box is displayed in the row, so that you can write in the comment.
- The character number of the line comment is 100 characters.
- A Row that become the line comment becomes NOP instruction inside the PC.
- Rows during the network can not become line comments.
- In the ladder, you can insert the line comment in the row where the ladder circuit exists, but in the mnemonic, you can only create the line comment in the program address of the NOP instruction.

(Example)

Ladder program



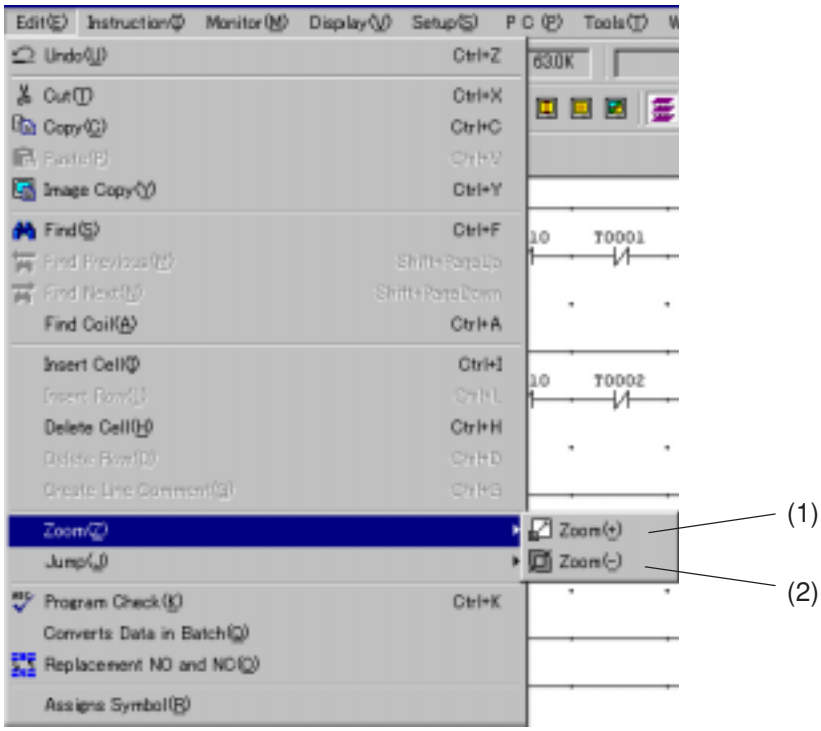
After selecting the row number with the cursor, click [Edit]-[Create Line Comment]. Then, the line comment will be inserted. After inputting the comment character, establish the command with the [Enter] key.

Mnemonic program

000000	Error prosessing monitor field		← Inside the PC, it becomes the NOP instruction.
000001	LS monitor error		← Inside the PC, it becomes the NOP instruction.
000002	STR NOT	00020	
000003	OR NOT	00021	
000004	STR NOT	00022	
000005	OR NOT	00023	
000006	AND STR		
000007	STR NOT	00024	
000010	OR NOT	00025	
000011	AND STR		
000012	OUT	00100	
000013	Battery error		← Inside the PC, it becomes the NOP instruction.
000014	STR	07372	
000015	OUT	00101	

■ Zoom (Program : Ladder)

Enlarge /contract the window display of the ladder program.



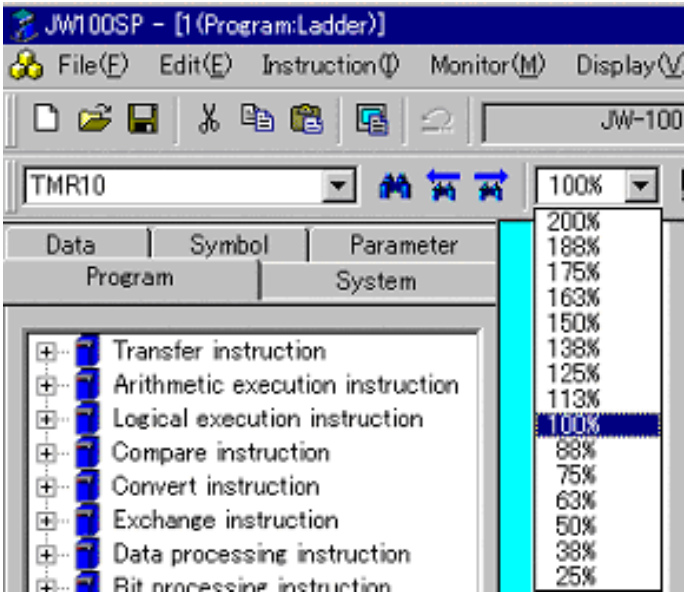
(1) Zoom (+)

Enlarge 1 rank up the window display of the ladder program.

・Enlargement rates are: 113%, 125%, 138%, 150%, 163%, 175%, 188%, and 200%.

・You can enlarge, for example, from 88% → 100%.

・You can select from the magnifying power chart of the sub toolbar.



(2) Zoom (–)

Contract 1 rank down the window display of the ladder program.

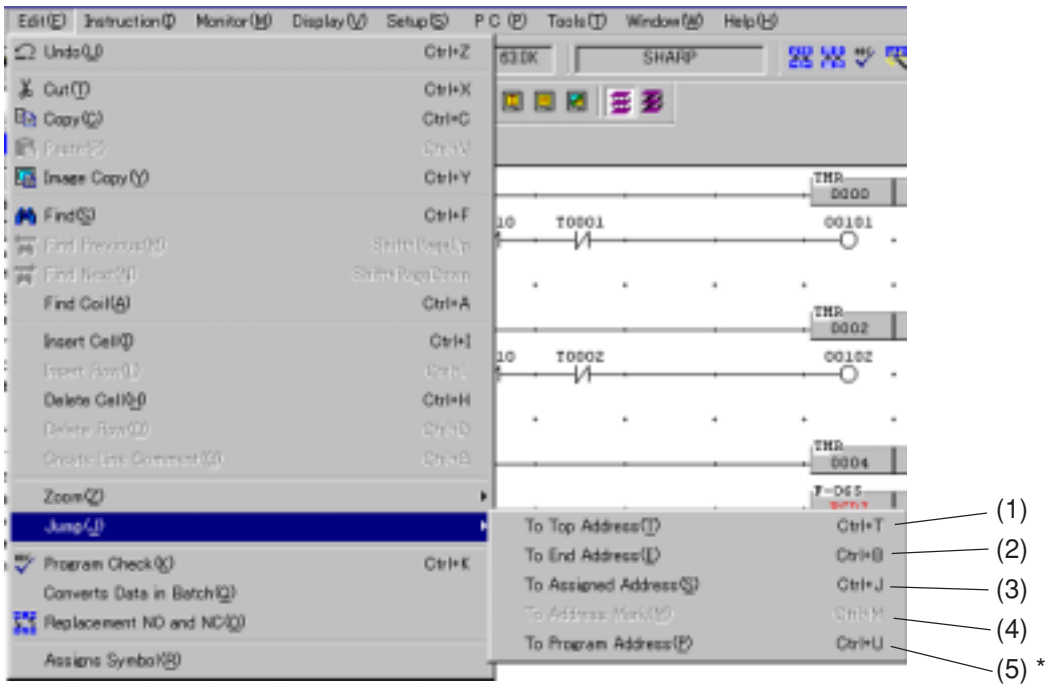
・Contraction rates are: 88%, 75%, 63%, 50%, 38%, and 25%.

・You can contract, for example, from 150% → 125%.

・You can select the contraction rate from the magnifying power chart of the sub toolbar.

■ Jump (Program)

Move (jump) to the assigned row. There five types for ladder and four types for mnemonics.



(Menu of ladder)

* "To Program Address" (5) is not for mnemonics.

(1) To Top Row

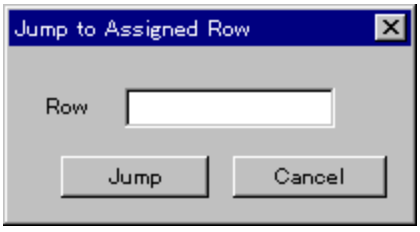
Move to the front of the window.

(2) To Unedited Row

In case of the ladder, it moves to the unwritten row, and in case of the mnemonic, it moves to the NOP instruction.

(3) To Assigned Row

Moves to the assigned row number by the [Jump to Assigned Row] dialog box.



(4) To Address Mark

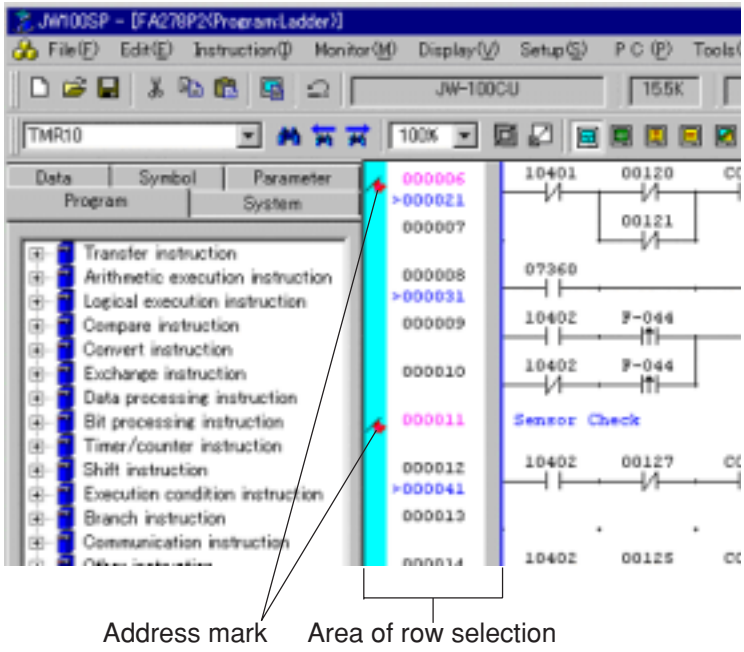
If you select the address mark that was setup already by the [Go to Address Mark] dialog box , it moves to the row where the address mark was added.

●About the address mark function

You can add address mark in the optional row of a window.

① Adding method

If you click in the area of row selection, the address mark will be displayed on the left of the row.



・If you double click in the row that contains the address mark, the address mark will be deleted.

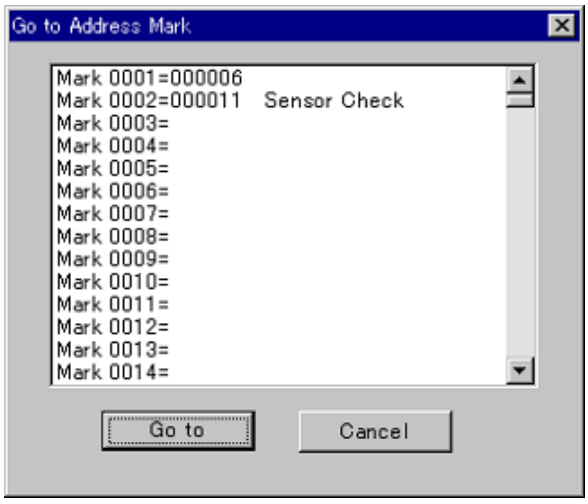
・You can also add the address mark to the row which was assigned as the line comment.

② Number of address marks

You can add maximum 256 address marks.

③ Using method

If you click [Jump]-[To Address Mark] by the [Edit] menu, [Go to Address Mark] dialog box will be displayed.

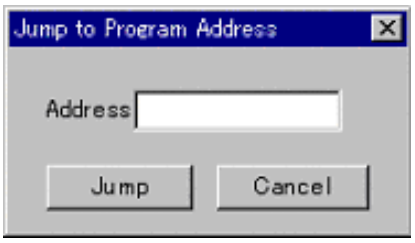


・ If you click [Go to] after selecting the address mark, it moves to the row containing this assigned mark.

・ The line comment is also displayed, so that it is useful to add the address mark to the line comment.

(5) To Address Mark

Move to the address specified in the [Jump to Program Address] dialog box.



■ Library (Program : Ladder)

In the library window, "Create library," "read file," and "save file" operations are executed. This operation is executed under the [Library] of the [Edit] menu.

・Program:Ladder

● Library

Item	Content
Read	If you click [Library]-[Read], the library window will be displayed. In addition, in the library window, if you click [File]-[Read], [Read from library] dialog box will be displayed. The file is selected in this dialog box, and the file will be read. ・It can read the file that was setup in the same model as the library window. Also, the file that can read is only the library file that carries the extension LB2.
Register	If you click [Library]-[Register] after selecting the register area at the program: ladder window, the library window will be displayed under the condition of the select area being copied. If you click [File]-[Save As] at this window, [Register library file] dialog box will be displayed. Save it with the file name.

Refer to "Chapter 6 Program Edit" for more details on the library.

■ Program Check (Program)

(1) Function

Check the grammar and the format of the program

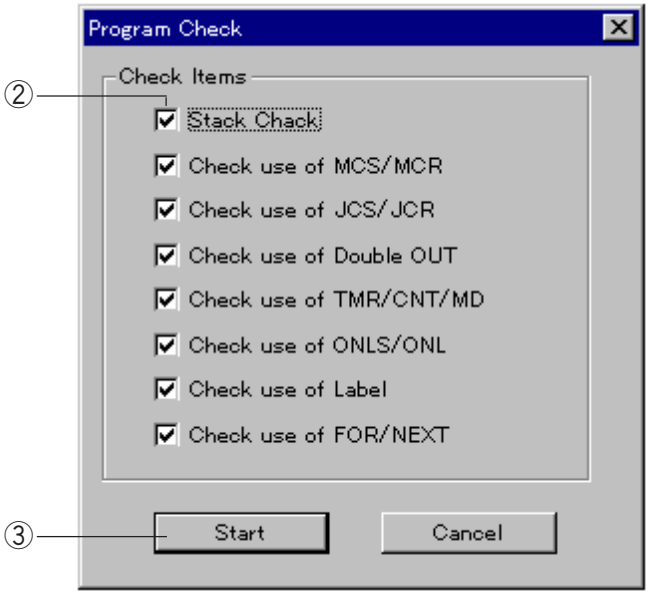
The following are the check items.

Check item
Stack use condition
MCS /MCR use condition
JCS /JCR use condition
Double use of the output instruction
Double use of TMR /CNT /MD instruction
Use condition of ONLS /ONLR
Use condition of Label
Use condition of FOR /NEXT instruction

(2) Operation content

① Click [Edit]-[Program Check] of the menu bar.

⇒ [Program Check] dialog box will be displayed.



② Select the check item

Click the check box that contains the item to check.

⇒ The check mark will be displayed.

③ Click [Start] button

⇒ The program of the check item will be checked.

・The check result will be displayed at the message bar window.

■ Converts Data in Batch (Program)

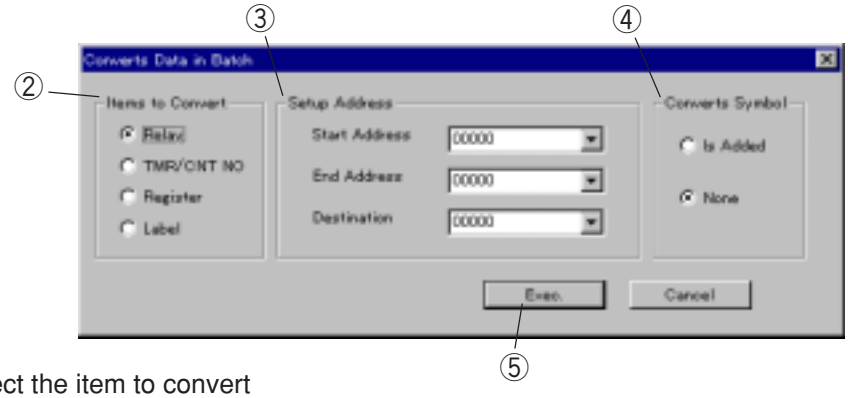
(1) Function

The whole program including relay /timer /register /label number are modified in batch.

(2) Operation content

① Click [Edit]-[Converts Data in Batch] of the menu bar of the program

⇒ [Converts Data in Batch] dialog box will be displayed.



② Select the item to convert

Select the kinds (Relay, TMR /CNT, Register, Label) for conversion data in batch.

③ Setup the address

Setup the start (front) address, end address, the front address of the destination address of the relay /register, etc.

④ Select "Is Added /None" of the "Converts Symbol"

In case of changing the symbol/comment at the same time, select "Is Added", and in case of not changing the symbol/comment, select "None."

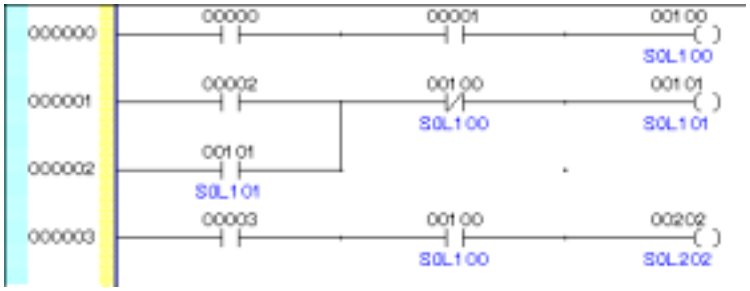
If you setup "Is Added," the address of the symbol /comment that attaches to the address will also be changed at the same time.

⑤ Click [Exec.] button.

⇒ Data in batch are changed.

(3) Conversion example

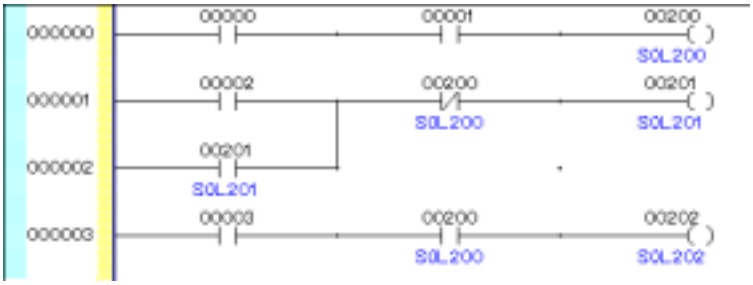
Before the Conversion



Converts data in batch

Items to convert	: Relay
Start address	: 100
End address	: 101
Destination	: 200
Converts symbol	: None

After the Conversion



■ Replacing Contacts (Program : Ladder)

(1) Function

Interchange A contacts with B contacts in the specified relay address, and vice versa, about the program in operation.

(2) Operation content

① Click [Replacement No and Nc] of the [Edit] menu in the menu bar of the program:ladder.
⇒ [A Contact ⟷ B Contact] dialog box will be displayed.

② Determine the relay address whose contacts will be interchanged.
⇒ If you select a contact in the program window in operation, the related relay address will be automatically displayed.

③ Click [Execute].
⇒ The [Result] dialog box is displayed, and you can see how many contacts have been interchanged.

(Example) When you have replaced the contacts in the relay address 12000

■ Assigns Symbol (Program : Ladder/Symbol)

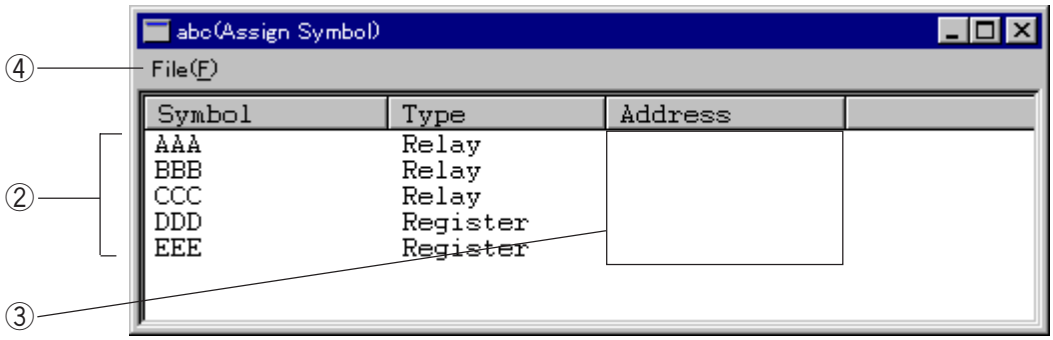
(1) Function

When creating the ladder program, assign the symbol which was temporarily registered by the symbol input, to the actual address.

(2) Operation content

① Click [Edit]-[Assign Symbol] of the menu bar

⇒ [Assign Symbol] dialog box will be displayed.



(Display example)

Item	Content
Symbol	Display the temporary registered symbol.
Type	Display the temporary registered data memory classification (relay /register, etc.) of the symbol.
Address	If you assign the address to the symbol, the address will be displayed.

● In case of the direct input of the address

② "Double click the row of the assign operation" or "Input [Enter] key after selecting the row of the assign operation"

⇒ Open the box for input on the address chart.

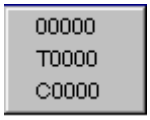
③ Input address

● In case of selecting / inputting the address

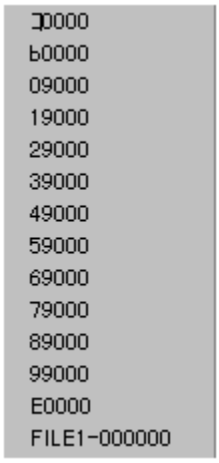
② Click to the right of the mouse after selecting the row of the assign operation

⇒ The select menu will be displayed.

・Type : at the time of relay



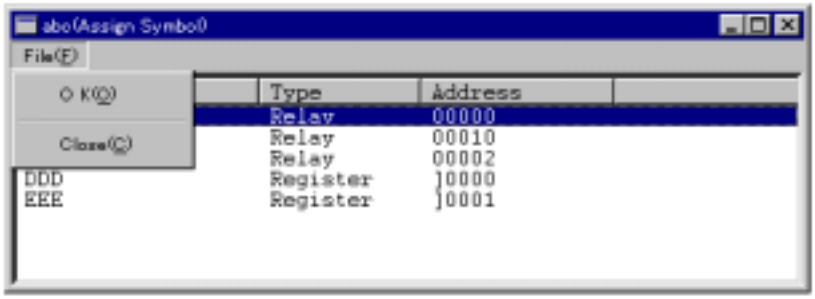
・Type : at the time of register



③ Input the address after selecting the item of the address

④ Click [File]-[OK]

⇒



(Display example)

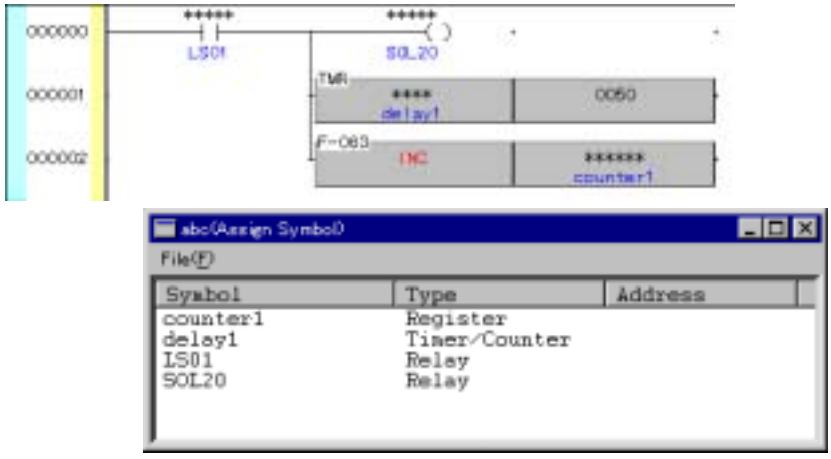
- The symbol assigning the address will be registered in the symbol/comment window.
- The progress of the register will be displayed at the message bar.
- The symbol that completed the registration will be deleted from the list of [Assign Symbol] dialog box.
- Until you click [OK], the symbol assigning the address remain temporary registered.

(3) Assign example

Before assigning the symbol

Display Type＝“Address＋Symbol”

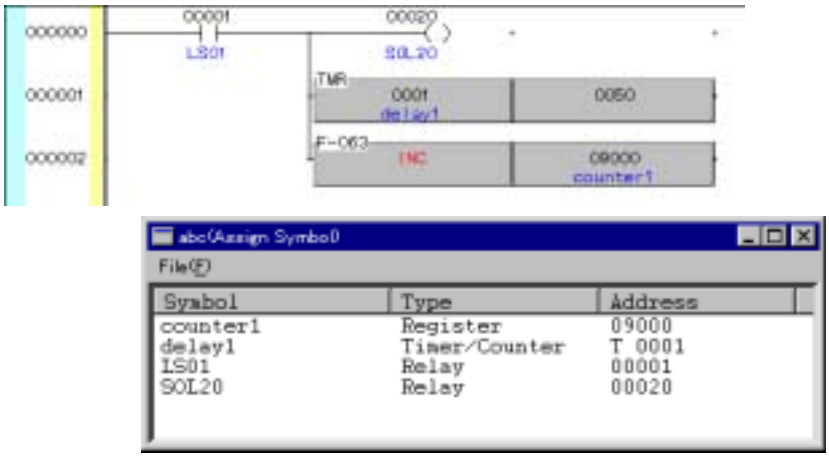
(But the input symbol is: Display Type＝at the“Symbol”)



Assign symbol

After assigning the symbol

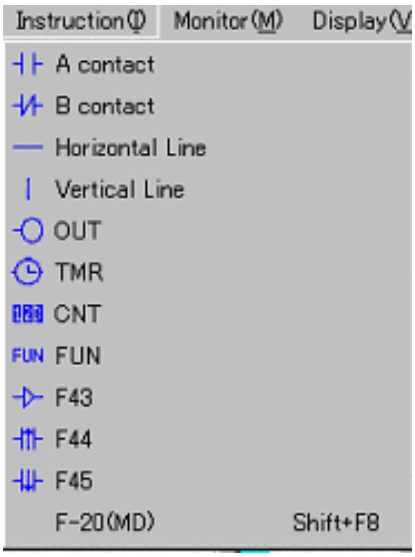
Display Type＝“Address＋Symbol”



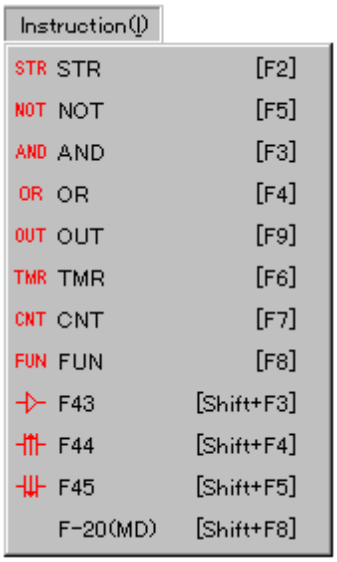
5-3 Instruction (Program)

If you click [Instruction] at the menu bar of the [Program] window, [Instruction] menu summary will be displayed.

・Program：Ladder



・Program：Mnemonic



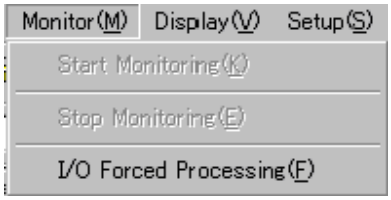
Menu item	Content
A contact	When editing the ladder, Input A contract.
B contact	When editing the ladder, Input B contract.
Horizontal line	When editing the ladder, Input horizontal line.
Vertical line	When editing the ladder, Input vertical line.
STR	When editing the mnemonic, input STR, STR NOT, AND STR, OR STR instruction.
NOT	When editing the mnemonic, input STR NOT, AND NOT, OR NOT instruction.
AND	When editing the mnemonic, input AND, AND NOT, AND STR instruction.
OR	When editing the mnemonic, input OR, OR NOT, OR STR instruction.
OUT	Input OUT instruction (coil).
TMR	Input TMR instruction. When editing the mnemonic, it's also used as the input of TMR contact.
CNT	Input CNT instruction. When editing mnemonic, it's also used as the input of CNT contact.
FUN	Input the application instruction.
F43	Input F-43 instruction (reverse bit).
F44	Input F-44 instruction (differential ON).
F45	Input F-45 instruction (differential OFF).
F-20 (MD)	Input F-20 instruction (MD). ・If you click［F-20 (MD)］, ［Input F-20 (Maintenance display)］dialog box will be displayed.

Refer to “Chapter 6 Program Edit” for the detail on the instruction input.

5-4 Monitor (Main/Program/System/Data/Parameter)

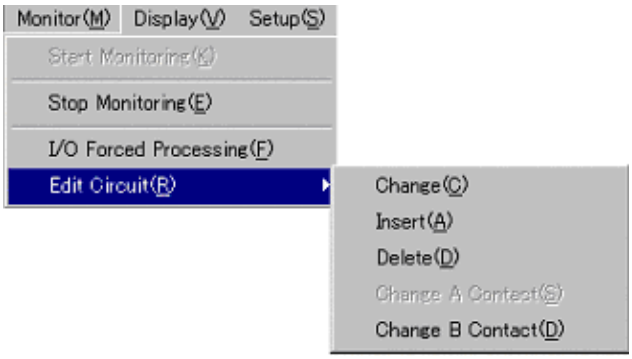
If you click [Monitor] at the menu bar of each window, [Monitor] menu summary will be displayed.

· Main



· Program : Mnemonic/System/Data/Parameter

· Program : Ladder



Menu item	Content
Start Monitoring	Start the monitoring.
Stop Monitoring	Stop the monitoring.
I/O Force Processing	Select either ON/ OFF of the relay of the PC by force.
Edit Circuit	Modify, insert, or delete the program of the PC, or interchange the contacts, during the monitoring.

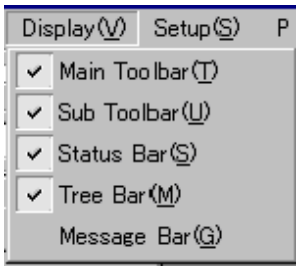
Refer to "Chapter 8 Monitor" for the details on the monitor.

5-5 Display (Main /Program /System /Data /Symbol /Parameter)

If you click [Display] at the menu bar of each window, [Display] menu summary will be displayed.

・Main

(Details in pages)



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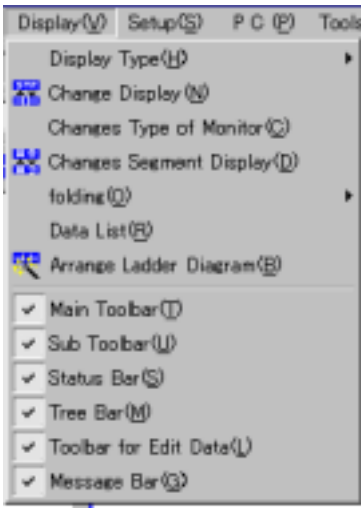
・Program：Ladder

(Details in pages)



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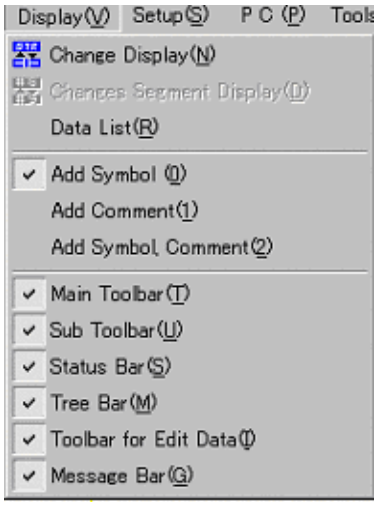
・Program：Mnemonic

(Details in pages)



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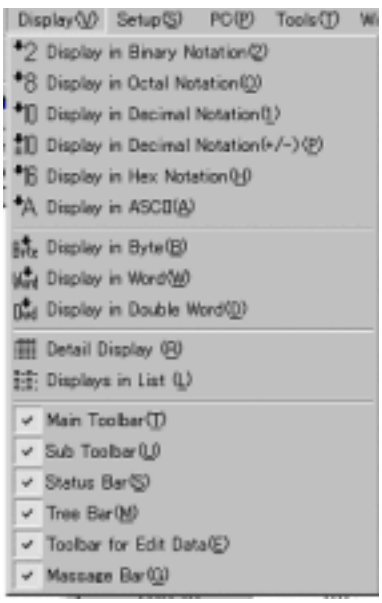
・System

(Details in pages)



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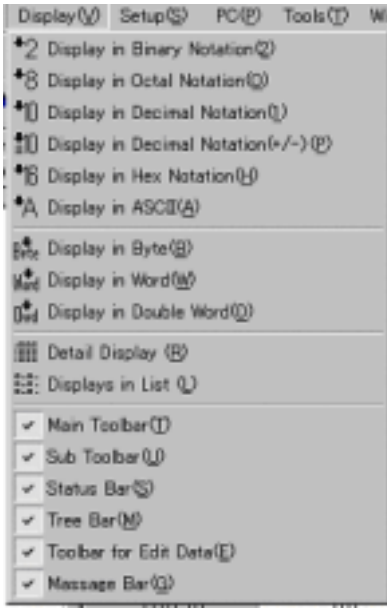
・Data

(Details in pages)



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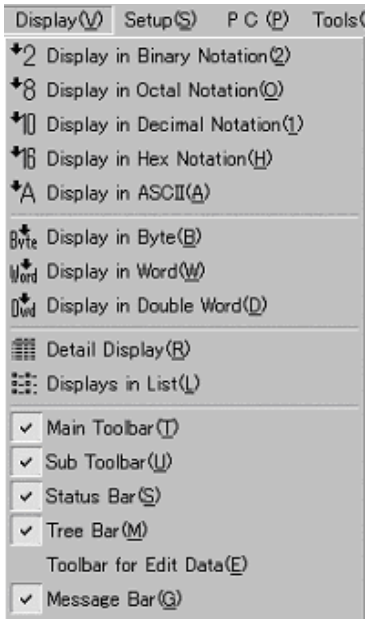
・Symbol

(Details in pages)



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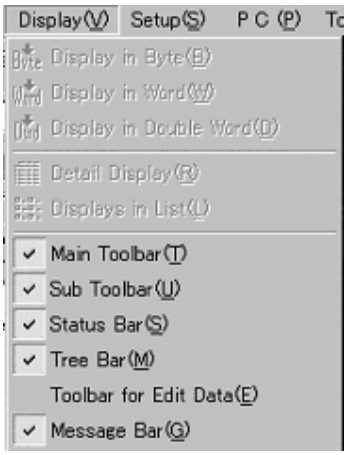
・Parameter

(Details in pages)



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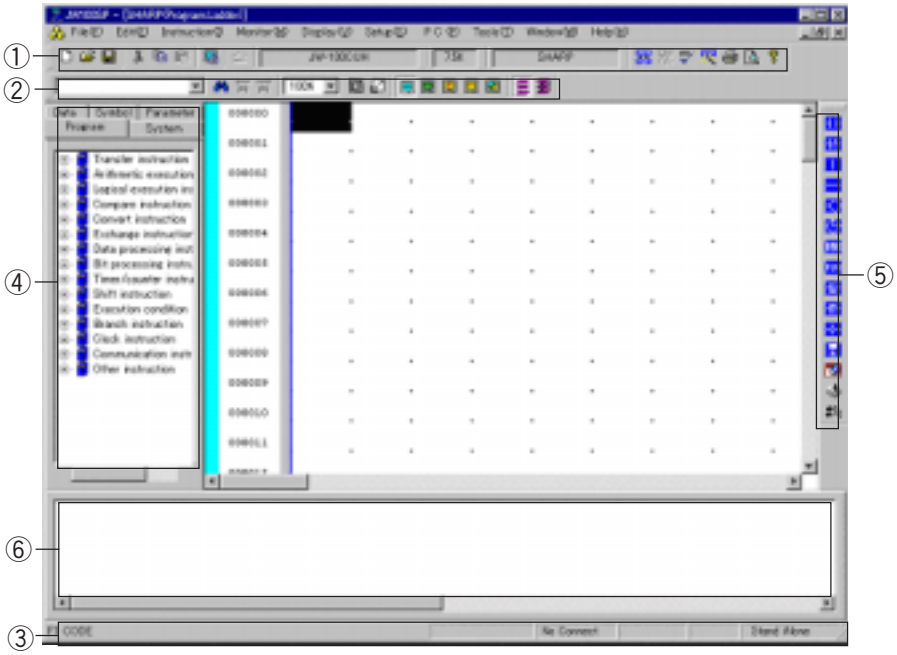
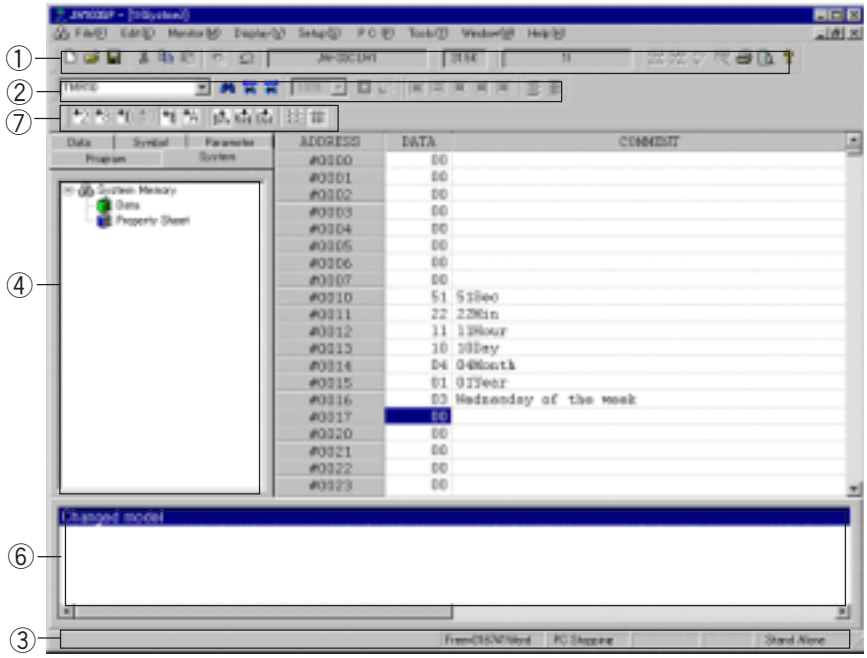
■ Main Toolbar /Sub Toolbar /Status Bar /Tree Bar / Toolbar for Editing Ladder / Toolbar for Editing Mnemonic /Toolbar for Editing Data / Message Bar (Main/Program/System/Data/Symbol/Parameter)

Select "yes /no" of the display of each bar at the window. When "yes" is selected, a check mark is displayed besides each bar name.

・In case of [Program : Ladder] window



・In case of [System] window

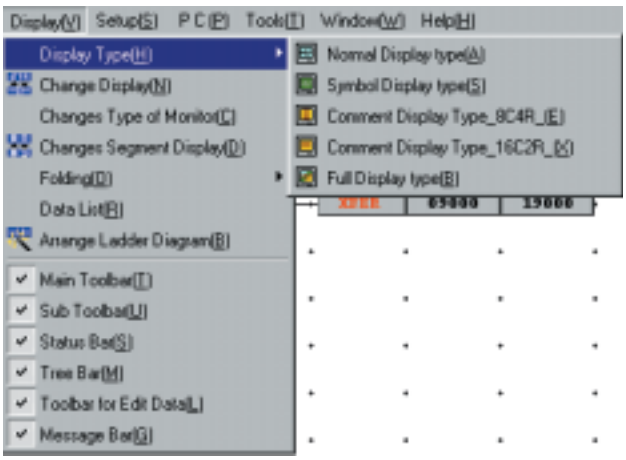


① : Main Toolbar
② : Sub Toolbar
③ : Status Bar
④ : Tree Bar
⑤ : Toolbar for Editing Ladder
In case of [Program : Mnemonic] window, the toolbar for editing mnemonic will be displayed at this position.
⑥ : Message Bar
⑦ : Toolbar for Editing Data

■ Select Address Display Type (Program : Ladder)

Select display type of the address/symbol/comment at the ladder program.

・Program : Ladder



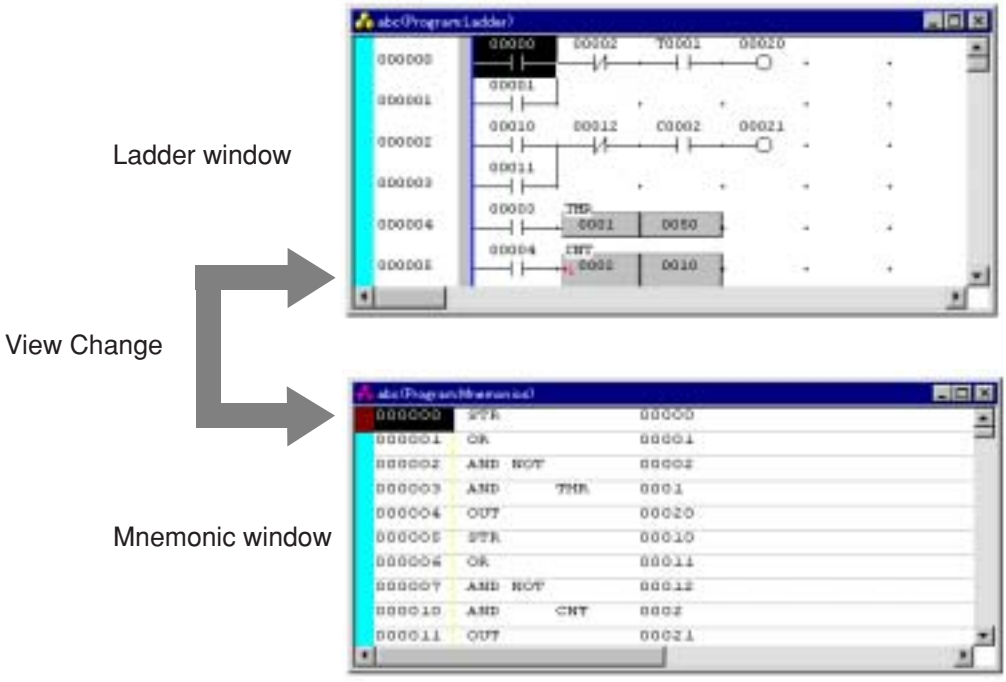
Item	Content
Normal	Only the address will be displayed. "＊＊＊＊＊" will be displayed if it's not input at the symbol, and the address is not assigned. (Symbol assigning method⇒ refer to the page 5-27)
Symbol	If the symbol is setup, the symbol will be displayed. Also, all address inputs are executed with the symbol. (Symbol input ⇒ refer to the pages 6-8, 6-15)
Comment (8c, 4l)	If the comment is set up, the comment will be displayed in 8 characters by 4 lines. You can input the comment when inputting the address.
Comment (16c, 2l)	If the comment is set up, the comment will be displayed in 16 characters by 2 lines. You can input the comment when inputting the address.
Full (Address/ Symbol/Comment)	When it is set to Address, you can also see the symbol or comment. You can input the symbol/comment when inputting the addres.

・Refer to the page 6-2 about the example for display.

■ View Change (Program)

Change between the ladder window and the mnemonic window.

・When changing, if one of the windows has been edited after the last transformation, a confirmation message asking either "from ladder to mnemonic" or "from mnemonic to ladder" will be displayed.



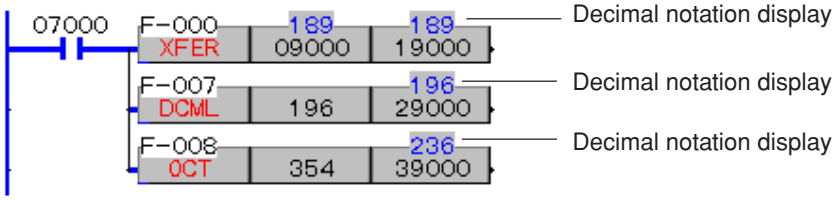
Select Monitoring Display Type (Program: Ladder)

(1) Function

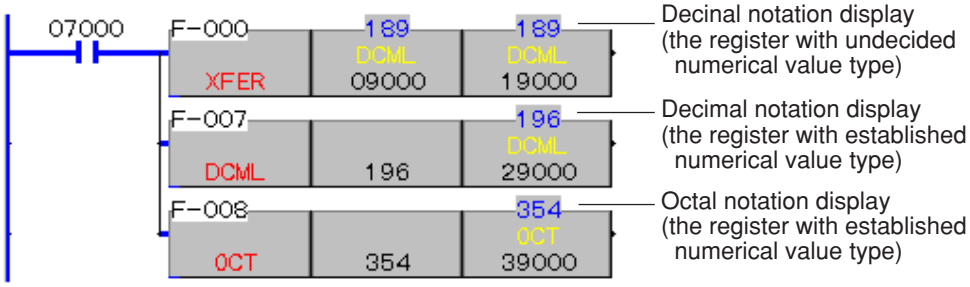
Assign (select) the monitor type during the monitor at the ladder window.

Item	Content
Type of Monitor Display Mode	Select the display type (simple display /detail display) of the application instruction. ◎Simple Display Only the current value will be displayed at the register of the application instruction. All current values of the register are displayed by the notation that was selected at the "type of register display mode." The current value of the byte /word treatment instruction will be displayed as byte /word, but the current value of the double word treatment instruction will be displayed in word. (only the lower words are displayed.) ◎Detail Display Display the current value and the notation in the register of the application instruction. You can select the "effectire area of type of register display mode." The current value at the byte /word /double word treatment instruction will be displayed in byte /word /double word display.
Type of Register Display Mode	Select the notation display type of the register during the application instruction from HEX (hexadecimal notation), DCML(decimal notation), OCT(octal notation).
Effective Area of Type of Register Display	Select the effective area of the notation display which was selected at the "type of register display mode." If the "tye of monitor display mode" is the "easy display," you can not select. In this case, it will be "all registers." ◎All Registers Display the current value by the notation selected at the "type of register display mode" to all the registers during the application instruction. ◎Infinitive Register of Number Type Only the register of the undecided value type during the application instruction will display the current value by the notation selected at the "type of register display mode." The register during the instruction (F-08 [transfer of octal notation] etc.) whose value type has been established will display the current value by the notation of the value type.

Example 1) Type of monitor display mode : simple display, type of register display mode : DCML



Example 2) Type of monitor display mode : detail display, type of register display mode : DCML, effective area of type of register display mode : infinitive register of number type



(2) Operation content

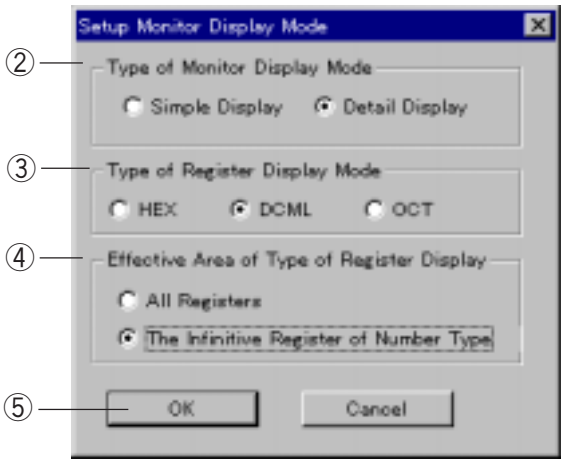
① Click [Display]-[Changes Type of Monitor] of the menu bar of the program：ladder
⇒ [Setup Monitor Display Mode] dialog box will be displayed.

② Select type of monitor display mode. Select from either "Simple Display" or "Detail Display."

③ Select type of register display mode
Select from "HEX" (hexadecimal notation), "DCML" (decimal notation),"OCT" (octal notation).

④ Select effetive area of type of register display
When selecting "Detail Display," select either "All Registers" or "The Infinitive Register of Number Type."

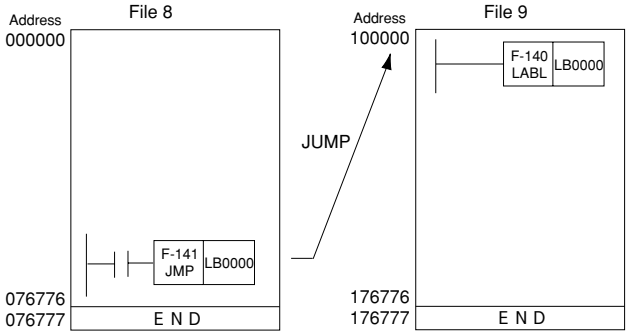
⑤ Click [OK]
⇒ Selected content is registered.

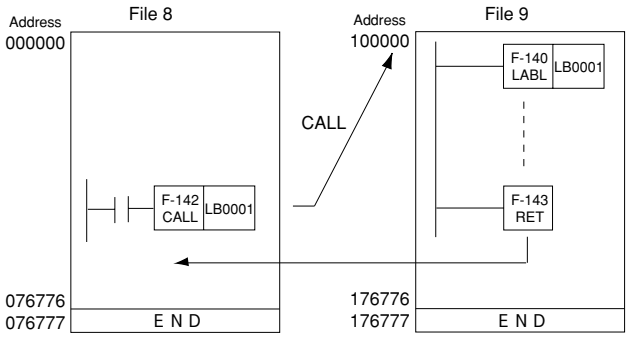


■ Change Segment File (Program)

Change the display of the program memory (file8/9).

- When the memory volume of the program exceeds 31.5K words, change the display between 00000 and 76777 (file8) and 100000 and after (file9) of the program address.
- File 9 is used as the destination of the divided branch created by the jump instruction (F-141,F-151), or used as the hangar of the sub routine program created by the sub routine call instruction (F-142,F-148).

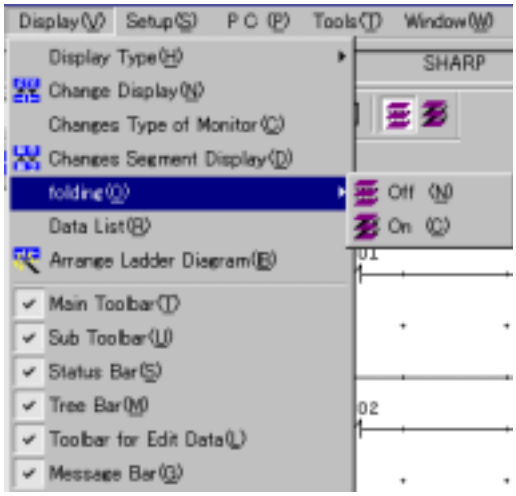




- Each function such as program check, change from ladder to mnemonic, change from mnemonic to ladder, transfer to the main PC, save in the file, or print will be executed in batch at the file 8/9.

■ Word Wrap

・Program：Ladder



Note:
You cannot edit the program when it is word-wrapped.

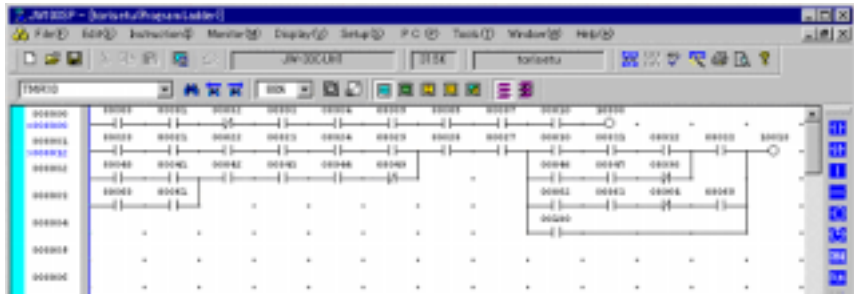
(1) Function

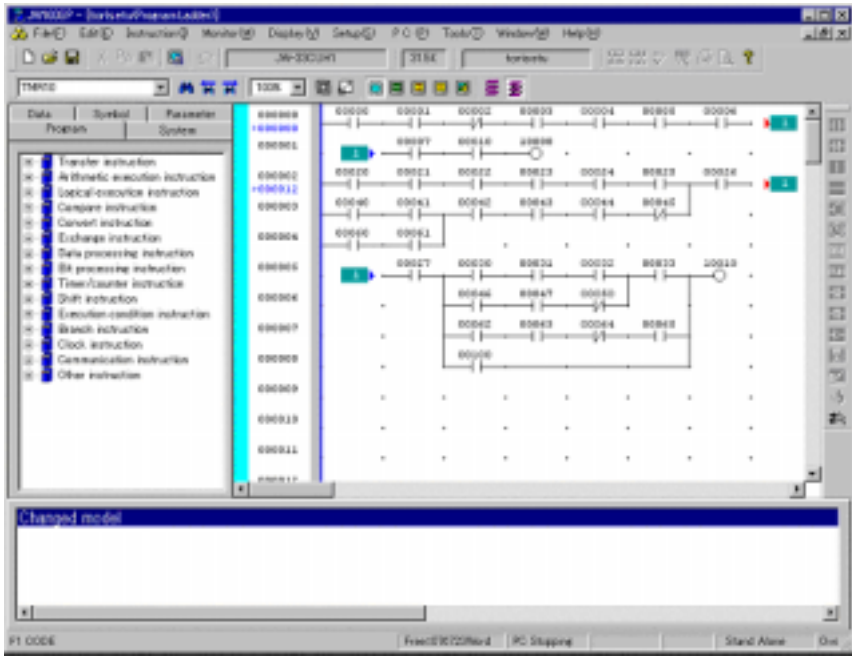
Display a ladder wrapped when it is longer than the width of the ladder window in operation.

(2) Operation

Click [Display]-[folding]-[On] in the menu bar of the program:ladder.

⇒ Display the ladder program wrapped.





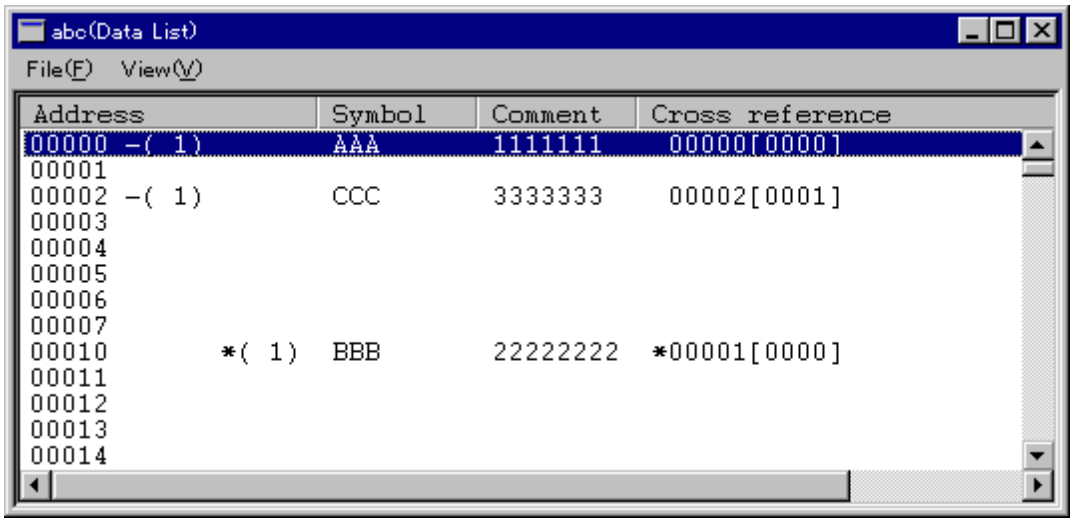
■ Data List (Program)

(1) Function

Display/print the using-condition chart of the relay, timer･counter, register and label.

･ The data list at the [Program：Ladder] window will be automatically changed to mnemonic before the display. As a result, the circuit of the ladder program must be normal in order to display the data list.

If you click [Display]-[Data List] by the menu bar of the [Program : Ladder]/ [Program : Mnemonic] window, [Data List] dialog box will be displayed.

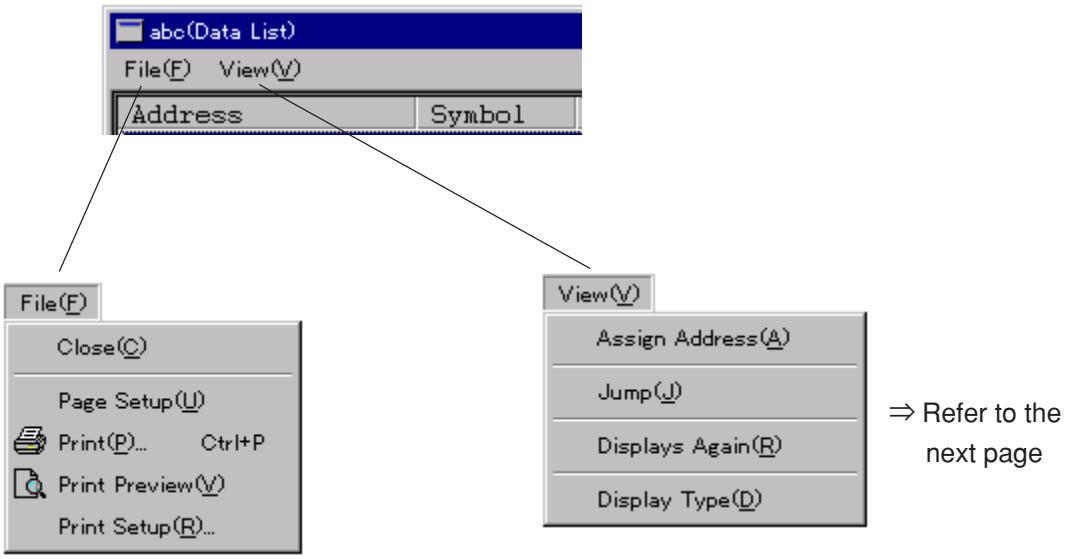


(Display example)

Item	Content
Address	Used address will display※(××). ×× of (××) describes the number of addresses. Display of ※ / Content － / Use as Contact ＊ / Use as Coil T / Use as Timer C / Use as Counter
Symbol Comment	Displayed when the symbol/comment is registered at the address.
Cross reference	※×××××[－－－－] will be displayed.××××× describes the Program address, and －－－－ describes the network (circuit) number. Display of※ / Content ＊ / Use as output ／ / Use as B contact Note that the network number will not be displayed at the [Program : Mnemonic] window.

(2) Operation content

Explain the menu operation of the [Data List] dialog box.



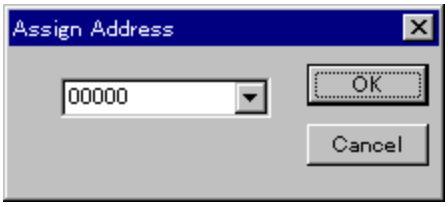
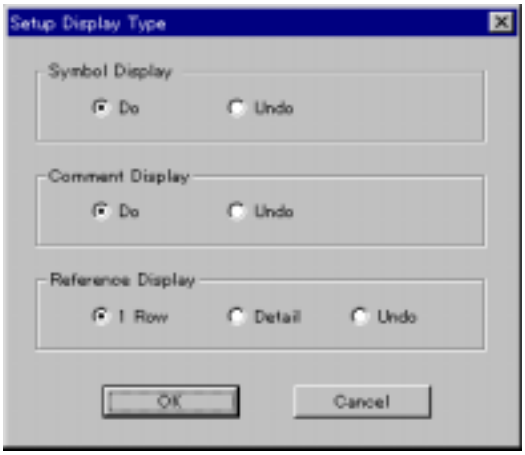
⇒ Refer to the next page

● **[File] menu**

Item	Content
Close	Close the data list file that is being displayed.
Page Setup	Setup the format of the page for printing the data list. ・If you click [Page Setup], [Setup Print of Data List] dialog box will be displayed.
Print	Print the data list.
Print Preview	Display the image data list as if printing.
Printer Setup	Setup selection /connection of the printer. ・If you click [Printer Setup], [Printer Setup] dialog box will be displayed.

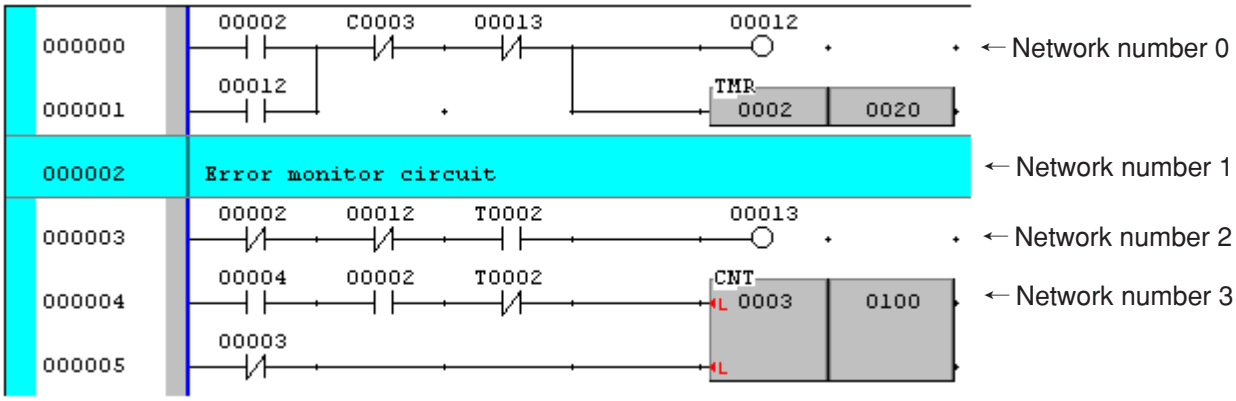
・For more details of printing data list, refer to "Chapter 9 Print."

● **[View] menu**

Item	Content
Assign Address	Assign the address to be displayed in the data list at the [Assign Address] dialog box. [Assign Address] dialog box will be displayed when this particular item is clicked.  ・If you click [▼] and select the kinds of register, and click [OK] after inputting the address, the data list of the assign area will be displayed. You can also assign the address by "double click the left side of the mouse" or by inputting the [Enter] key.
Jump	After selecting the program address of the cross reference display, if you click [View]-[Jump], the cursor will move to the instruction of the program address. Note that, you can also do the same operation by "double click the left side of the mouse." the program address of the cross reference display.
Displays Again	Create again the data list for every program and display.
Display Type	Assign the display type of the data list at the [Setup Display Type] dialog box. [Setup Display Type] dialog box will be displayed when this particular item is clicked.  ◎ Symbol Display Select "Do / Undo" of the display of the symbol which is setup at relay /register. Select the item by clicking. ◎ Comment Display Select "Do / Undo" of the display of the comment which is setup at relay /register. Select the item by clicking. ◎ Reference Display 1 Row : After the assigned address, display the cross reference of the continuous address by each row. Detail : Only the cross reference of the assigned address will be displayed repeatedly inside the cross reference display area. Undo : Cross reference is not displayed.

(3) Use example

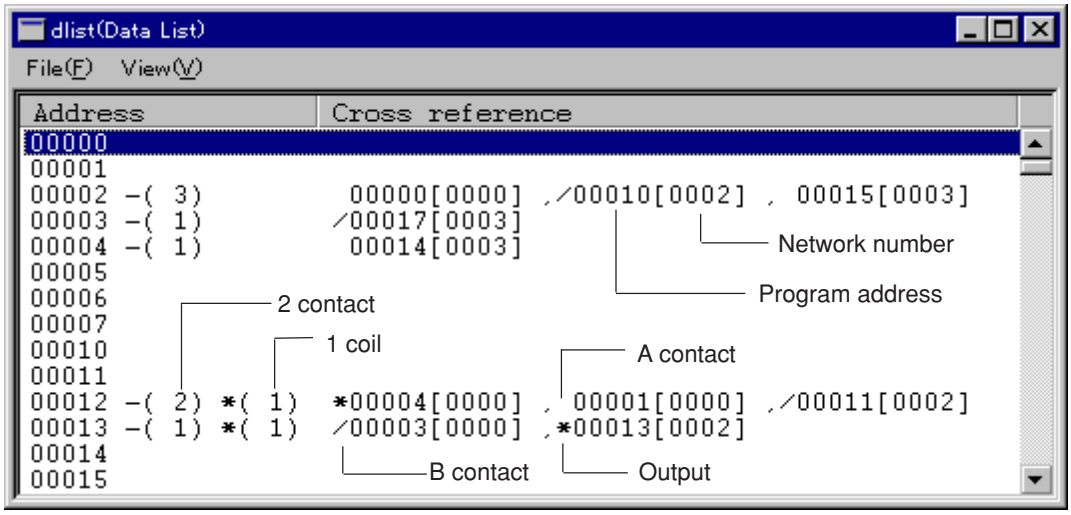
● **Ladder Program**



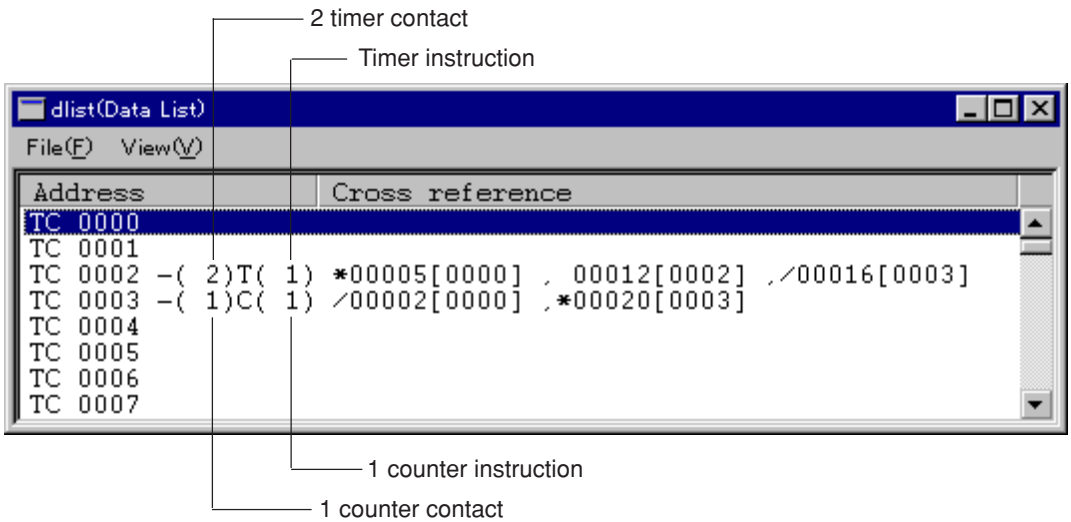
[Note] 1 comment line is 1 program address and 1 network.

● **Data List**

Display type－Symbol Display : "Undo", Comment Display : "Undo", Reference Display : 1 Row
Assign Address : 00000



Assign Address：TC0000



■ Arrange Ladder Diagram (Program: Ladder)

(1) Function

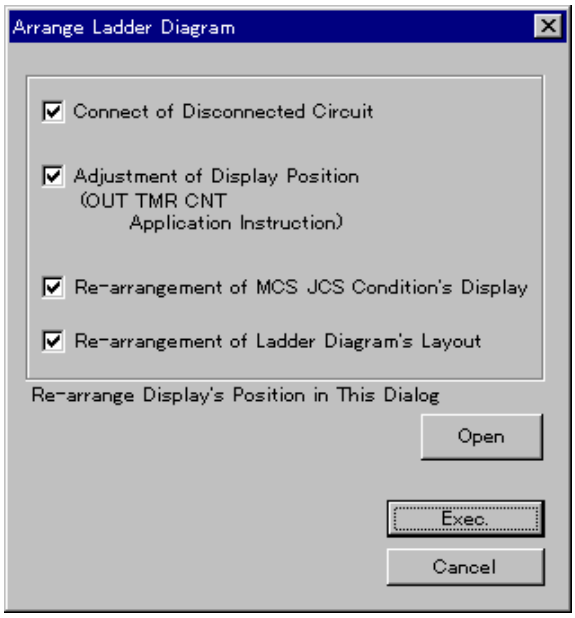
You can optimize the following: the connection of the disconnected circuit of the created ladder circuit, adjustment of the display position of the output instruction (OUT instruction, /application instruction etc), re-arrangement of the MCS/JCS condition display,re-arrangement of the ladder diagram's layout.

Item	Content
Connection of Disconnected Circuit	Re-connect the disconnected circuit. Only the horizontal line can be connected, and you can not connect the vertical line.
Adjustment of Display Position	Adjust the display position of the OUT instruction, TMR/CNT instruction, application instruction. You can setup the display position by selecting the [Open] button inside the [Arrange Ladder Diagram] dialog box, or at the [Setup Display Pattern] dialog box by clicking [Setup]-[Setup Display Pattern] by the menu bar.
Arrangement of MCS JCS Condition's Display	Check the valid area of the MCS(F-30), JCS(F-41)condition, and display "M" (MCS), "J" (JCS) to the row number of the valid area.
Re-arrangement of Ladder Diagram's Layout	Omit unnecessary horizontal lines of the ladder circuit, and gather the ladder element to the left side.

・For more details of the display example etc., refer to the pages 6-35 to 37.

(2) Operation content

① Click [Display]-[Arrange Ladder Diagram] by the menu bar of the program: ladder.
⇒ [Arrange Ladder Diagram] dialog box will be displayed.



② Select item
Click the check box of the item to execute.
⇒ The check mark is displayed.

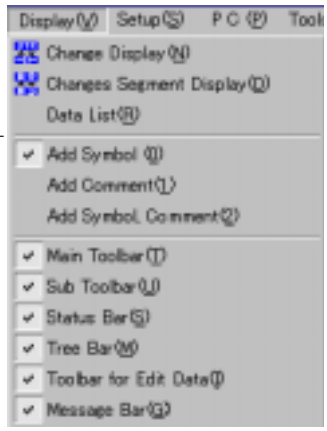
③ Setup screen
Click [Open] button when setting up the screen for adjustment of the display position.
⇒ [Setup Display Pattern] dialog box will be displayed.

The setup at the [Setup Display Pattern] dialog box is same as the setup at the [Setup]-[Setup Display Pattern], so please refer to the page 5-57.
If you click [OK] at the [Setup Display Pattern] dialog box, or click [Cancel] button, you will be back to the [Arrange Ladder Diagram] dialog box.

④ Click [Exec.]
⇒ Execute the item of the check mark.

■ Displays in Symbol/ Displays in Comment/ Displays in Symbol & Comment (Program/Mnemonics)

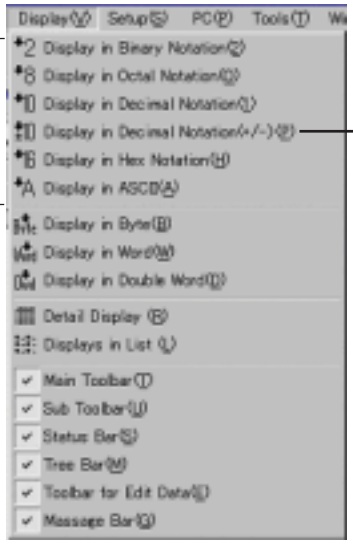
Change the display of symbol/comment.



Item	Content
Add Symbol	Display symbol
Add Comment	Display comment
Add Symbol Comment	Display symbol and comment at the same time.

■ Displays in Binary Notation /Displays in Octal Notation /Displays in Decimal Notation /Displays in Decimal Notation (with +-)/Displays in Hex Notation /Displays in ASCII (System/Data/Parameter)

Select the display of data (Binary notation/Octal notation/Decimal notation/Decimal Notation (with +-)/ Hexadecimal notation/ASCII).



※

※ You cannot select
"Display in Decimal Notation (with +-) for System.

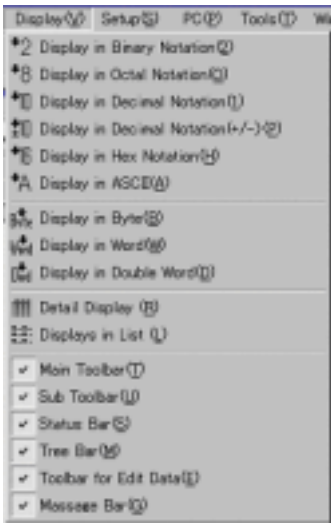
• The example on the left is in the case of "Data."

Item	Content
Displays in Binary Notation	Displays data in binary notation.
Displays in Octal Notation	Displays data in octal notation.
Displays in Decimal Notation	Displays data in decimal notation.
Displays in Decimal Notation (with +-)	Displays in decimal notation with a plus or minus sign.
Displays in Hex Notation	Displays data in hexadecimal notation.
Displays in ASCII	Displays data in ASCII type.

■ Displays in Byte /Displays in Word /Displays in Double Word

(System/Data/Parameter)

Select the display of data (Byte/Word/Double word).



Item	Content
Displays in Byte	Displays data in byte module.
Displays in Word	Displays data in word module.
Displays in Double Word	Displays data in double word module.

■ Displays in Detail /Displays as a List (System/Data)

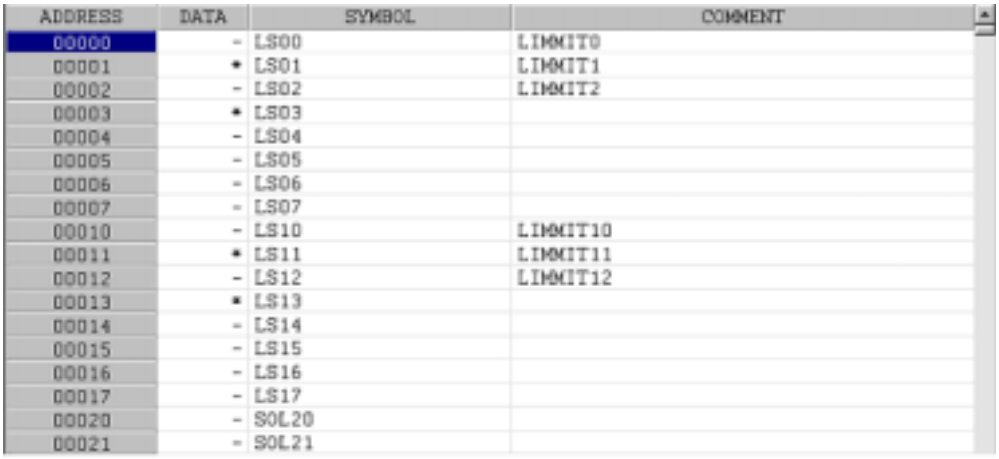
Select the display of data from the detail or list.

Menu item	Content
Detail Display	Displays in one row, and symbol /comment is also displayed by the window.
Displays in List	Displays maximum data that can be displayed in the window in several rows.

Window	Menu Item	Display Content
System	Displays in Detail	Address, Data, Comment
	Displays as a List	Address, Data
Data	Displays in Detail	Address, Data, Symbol, Comment
	Displays as a List	Address, Data

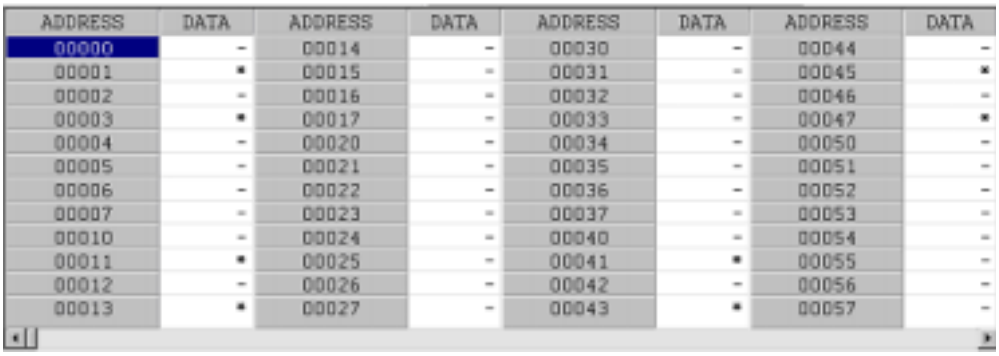
● Display example (example of data：relay)

・Displays in Detail



ADDRESS	DATA	SYMBOL	COMMENT
00000	-	LS00	LIMIT0
00001	*	LS01	LIMIT1
00002	-	LS02	LIMIT2
00003	*	LS03	
00004	-	LS04	
00005	-	LS05	
00006	-	LS06	
00007	-	LS07	
00010	-	LS10	LIMIT10
00011	*	LS11	LIMIT11
00012	-	LS12	LIMIT12
00013	*	LS13	
00014	-	LS14	
00015	-	LS15	
00016	-	LS16	
00017	-	LS17	
00020	-	SOL20	
00021	-	SOL21	

・Displays as a List



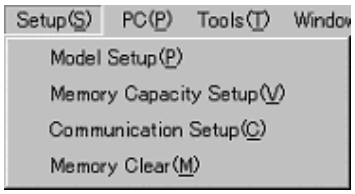
ADDRESS	DATA	ADDRESS	DATA	ADDRESS	DATA	ADDRESS	DATA
00000	-	00014	-	00030	-	00044	-
00001	*	00015	-	00031	-	00045	*
00002	-	00016	-	00032	-	00046	-
00003	*	00017	-	00033	-	00047	*
00004	-	00020	-	00034	-	00050	-
00005	-	00021	-	00035	-	00051	-
00006	-	00022	-	00036	-	00052	-
00007	-	00023	-	00037	-	00053	-
00010	-	00024	-	00040	-	00054	-
00011	*	00025	-	00041	*	00055	-
00012	-	00026	-	00042	-	00056	-
00013	*	00027	-	00043	*	00057	-

5-6 Setup (Main/Program/System/Data/Symbol/Parameter)

If you click [Setup] by the menu bar at each window, [Setup] menu summy will be displayed.

・Main /Program : Mnemonic /System /Data /Parameter

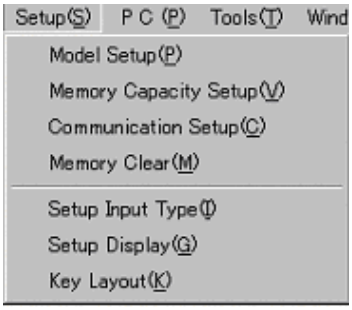
(Details in pages)



5-46
5-47
5-48
5-54

・Program: Ladder

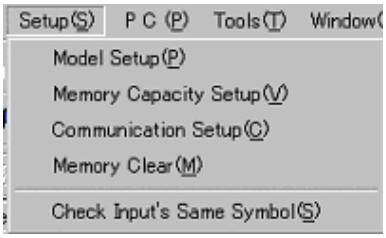
(Details in pages)



5-46
5-47
5-48
5-54
5-55
5-56
5-57

・Symbol

(Details in pages)



5-46
5-47
5-48
5-54
5-58

■ Select PC Model (Main/Program/System/Data/Symbol/Parameter)

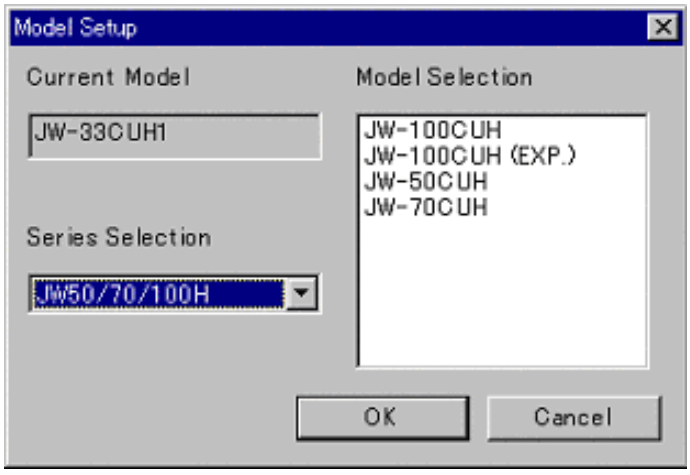
(1) Function

Setup the PC model that will be the object of edit/monitor.

・You can only use one model at a time even you have opened several windows .

(2) Operation content

If you click [Model Setup] by the [Setup] menu, [Model Setup] dialog box will be displayed.



・Details on this operation is same as "New" (refer to the page 5-4).

■ Select Memory Capacity (Main/Program/System/Data/Symbol/Parameter)

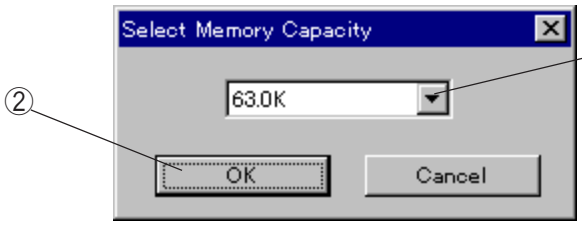
(1) Function

Setup the volume of the program memory.

・Setup the memory volume of the PC model which has been setup.

(2) Operation content

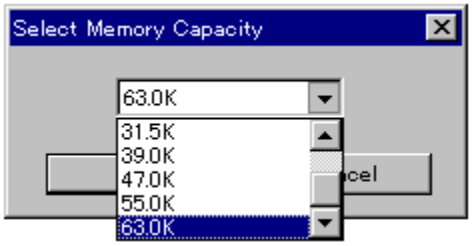
If you click [Memory Capacity Setup] by the [Setup] menu, [Select Memory Capacity] dialog box will be displayed.



(In case of JW-100CUH)

① Click [▼]

⇒ Display the possible (for setup) memory volume summary of the model which has already been setup.



(In case of JW-100CUH)

・Select the memory volume.

② Click [OK]

⇒ Setup the memory volume.

■ Setup Communication (Main/Program/System/Data/Symbol/Parameter)

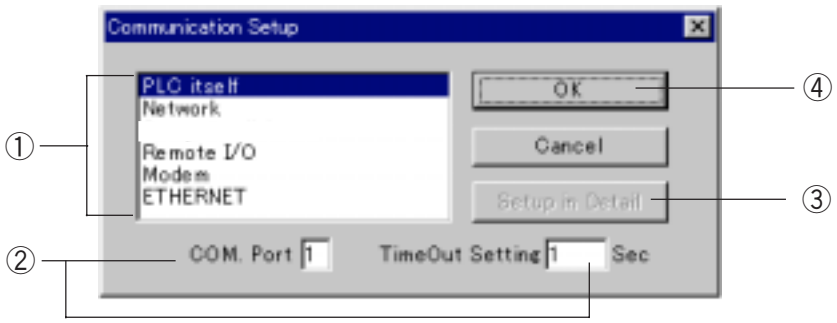
[1] Function

Setup the PC which will be the object of communication, or setup the communication port of the personal computer.

Communication object	Operation Method
PC itself	Operate the PC by connecting the unit between the personal computer and the PC with the communication adapter (JW-100SA) and connection cable. ・When the model is JW30H, you can setup the communication baud rate.
Network	Connect the personal computer to the network module/ ME-NET module , and operate the PC which is connected to the satellite net /ME-NET/SUMI-NET.
Remote I/O	Connect the personal computer to the remote I/O slave station module (JW-20RS), and operate the master PC that is connected to the satellite net.
Modem	Connect the personal computer to the network module through modem, and operate the PC.
Ethernet	Operate the PC connected to Ethernet.

[2] Operation Content

If you click [Communication Setup] by the [Setup] menu, [Communication Setup] dialog box will be displayed.



・① to ④ will be compatible to the following ① to ④.

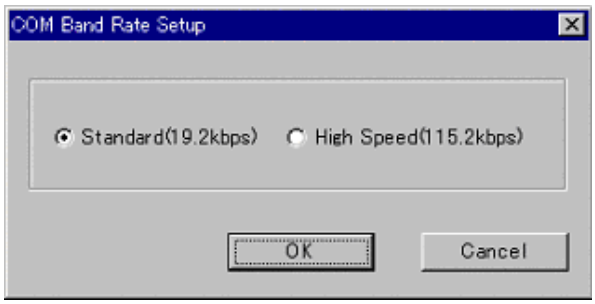
(1) In case of connecting with the PC itself

① Click [PLC itself].

② Set up the communication port and timeout duration of the personal computer.

③ When the model is JW30H, click [Setup in Detail].

⇒ [COM Baud Rate Setup] dialog box will be displayed.



・ Select either standard communication baud rate (19.2kbps) or high speed (115.2kbps). The possible combinations of the communication during the high speed are the PC that control module is JW-31CUH1/32CUH1/32CUM1/33CUH1/33CUH2/33CUH3, and it is limited to the personal computer that is compatible to 115.2kbps. If the personal computer is not compatible to 115.2kbps, select the high speed (115.2kbps). You will be then able to communicate by 19.2kbps.

④ Click [OK]

⇒ The setup will be completed.

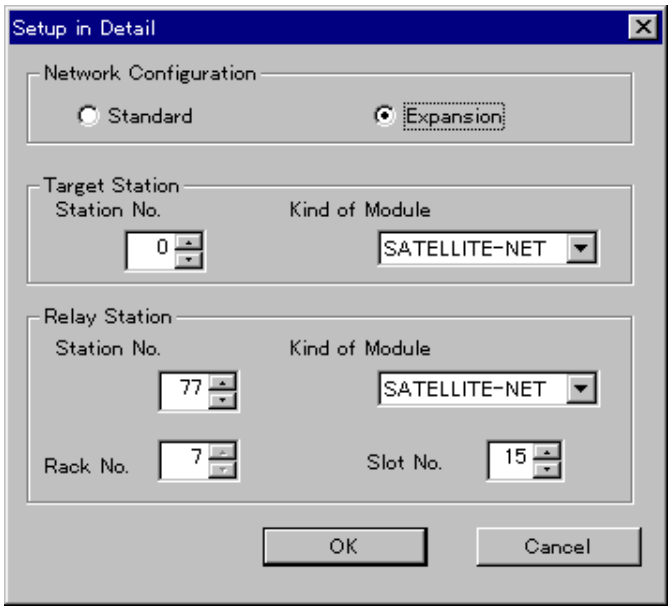
(2) In case of network connection (① to ④ ⇒ corresponding to page 5-48)

① Click [Network]

② Set up the communication port and timeout duration of the personal computer.

③ Click [Setup in Detail]

⇒ [Setup in Detail] dialog box will be displayed.



Operation Item	Operation Content
Network Configuration	Select from standard/expansion Standard: Operate the PC of the other station that is connected to the SATELLITE-NET/ME-NET/SUMI-NET (remote operation of one layer) Expansion: Relay the optional station that is connected to the SATELLITE-NET/ME-NET/SUMI-NET, and operate the PC of the other station that is connected to the SATELLITE-NET/ME-NET/SUMI-NET via the relay station. (remote operation of two layers)
Target Station	Setup the station number of the target station that will be the object of communicate and the kind of module. Station No.: 0 to 77(8) Kind of Module: SATELLITE-NET/ME-NET/SUMI-NET
Relay Station	When the network organization is the "expansion," setup the station number/kind of module/rack number/slot number of the relay station. Station No.: 0 to 77(8) Kind of Module: SATELLITE-NET/ME-NET/SUMI-NET Rack No.: 0 to 7 Slot No.: 0 to 15

・If you click [▼], the kind of module of the target station /relay station will be displayed in summary.

④ Click [OK]

⇒ The setup will be completed.

(3) In case of remote I/O connection (①～④ ⇒ corresponding to page 5-48)

① Click [Remote I/O]

② Set up the communication port and timeout duration of the personal computer.
(The "setup detail" of ③ is not necessary)

④ Click [OK]
⇒ The setup will be completed.

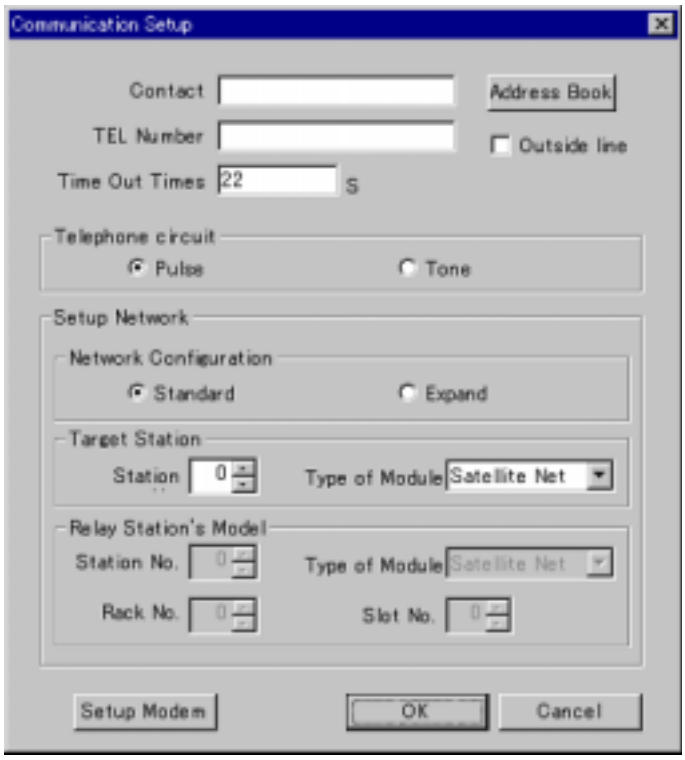
(4) In case of modem connection (①～④ ⇒ corresponding to page 5-48)

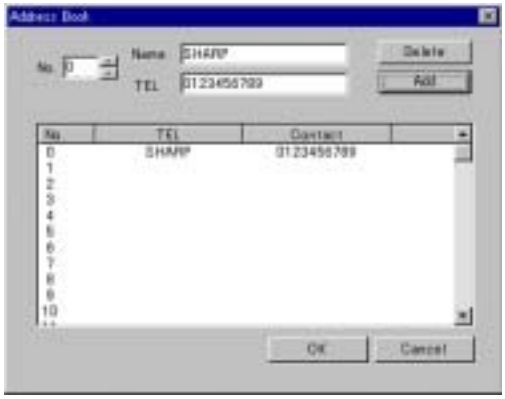
① Click [Modem]

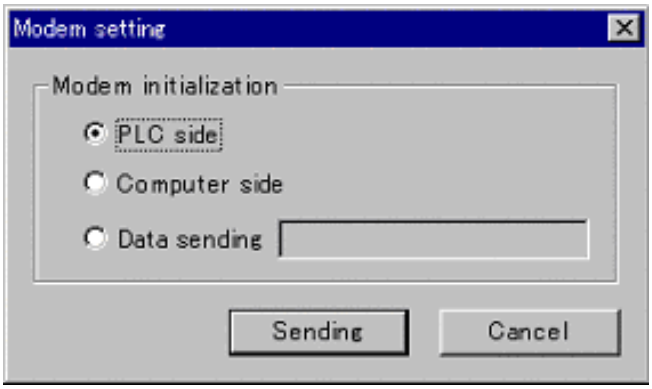
② Set up the communication port and timeout duration of the personal computer.

③ Click [Setup in Detail]

⇒ [Communication Setup] dialog box will be displayed.



Operation Item	Operation content
Contact	Input the name of company/person you will communicate, if necessary.
TEL Number	Input the telephone number of company/person/computer you will communicate. If you are using PBX (e.g. dial 0 to outside line), check the [Outside line] box.
Address book	You can register telephone numbers or other information in the address book. You can register 100 contact numbers from #0 to #99. Information you have registered is imported to the [Communication Setup] dialog box when you select the telephone number and click [OK]. When you click the [Address book] button, the [Address book] dialog box will be displayed.  Input the number, name, and telephone number, and click [Add]. The information will beregistered in the address book. To delete the information, select the number and click [Delete].

Operation Item	Operation content
Time Out Times	Set up the duration of communication timeout between the modem and JW-100SP. The timeout duration varies, depending on conditions of the personal computer and the telephone line. Set it up according to the situation.
Telephone circuit	Select the type of your telephone line (pulse or tone).
Setup Network	Refer to "Network Connection."
Modem setting	If you connect a new modem, set up the modem itself first. When you click the [Setup Modem] button, the [Modem setting] dialog box will be displayed.  You need to set up the modem of both the PC and the personal computer. Connect the modem to the personal computer with a straight cable of RS-232C (usually attached to modem). To set up the modem of the PC, select [PLC side]; to set up the modem of the personal computer, select [Computer side] and click [Sending]. To set up the modem optionally, select [Data sending].

④ Click [OK]

⇒ The setup is completed.

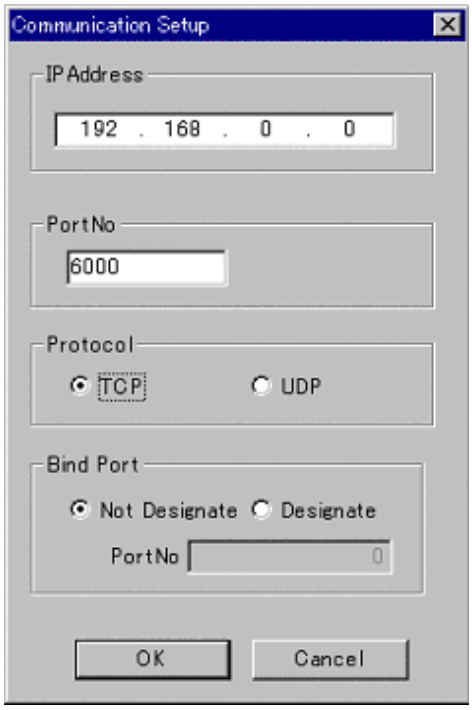
(5) In case of Ethernet connection (①～④ ⇒ corresponding to page 5-48)

① Click [Ethernet]

(You do not have to use the communication port of ②. Its setting is disabled.)

③ Click [Setup in Detail].

⇒ [Communication Setup] dialog box will be displayed.



Operation Item	Operation content
IP Address	Specify the IP address set in the contact unit.
Port No	Specify the port number set in the contact unit.
Protocol	Specify the protocol set in the contact unit. Set the contact unit to TCP_Passive or UDP. You cannot set it to TCP_Active. Note: If you are using JW-50CM, only UDP is available.
Bind Port	Set up the port the personal computer is using. If you do not specify, Windows automatically set it up.

④ Click [OK]

⇒ The setup is completed.

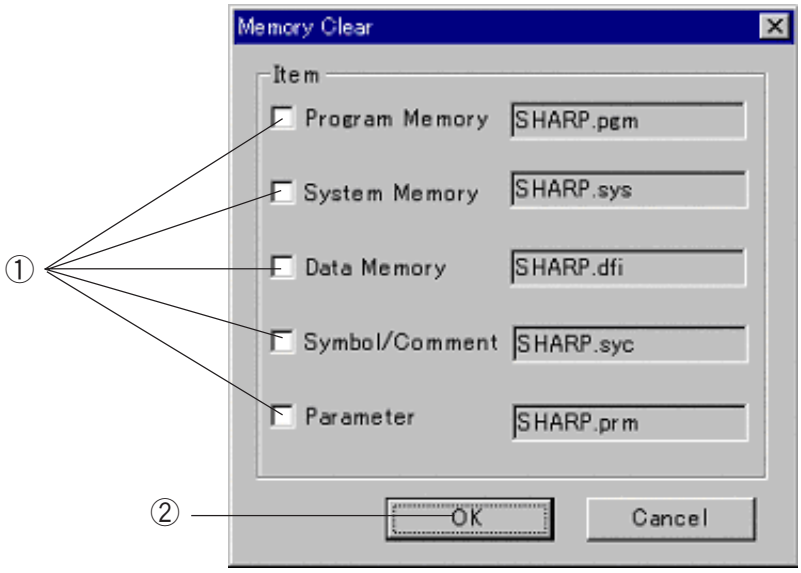
■ Memory Clear (Program/System/Data/Symbol/Parameter)

(1) Function

Initialize files(Program/System/Data/Symbol/Parameter) you are editing with this software.

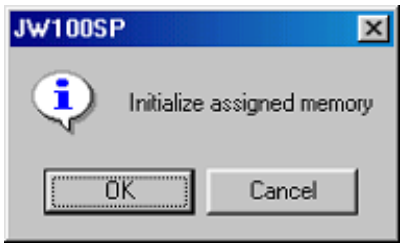
(2) Operation content

If you click [Memory Clear] at the [Setup] menu, [Memory Clear] dialog box will be dis played.



① Assign the object of "memory clear."
Click the check box of program memory, system memory, data memory, symbol/comment , parameter, and assign.

② Click [OK]
⇒ The confirmation dialog box of initialization will be displayed.



・If you click [OK], already setup object (file) will be memory cleared.

■ Setup Input Type (Program : Ladder)

(1) Function

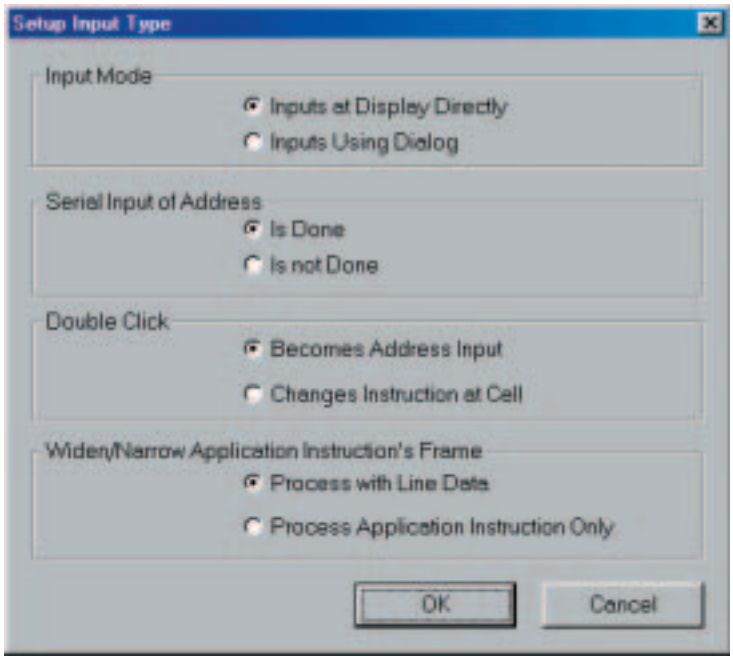
Setup the input mode at the time of creating a program, serial input of address input, double click, enlarge/contract of the application instruction frame.

<table>
<tr><th>Operation Item</th><th>Operation Content</th></tr>
<tr><td>Input Mode</td><td>Select "direct input" or "dialog input."
<table>
<tr><th>Select item</th><th>Content</th></tr>
<tr><td>Inputs at Display Directly</td><td>If you select the instruction from toolbar for editing ladder, instruction menu, function key, the number of relay address /register address /timer･counter address /application instruction will be initialized, and then it will be written directly into the selected cell position.
･It's useful when inputting the relay address after writing the drawing part of the ladder.</td></tr>
<tr><td>Inputs Using Dialog</td><td>If you select the instruction from toolbar for editing ladder, instruction menu, function key, the dialog box that inputs the relay address /register address will be displayed.
･Instruction that does not require the input of address will not display the dialog box, but it will be written onto the selected cell position.</td></tr>
</table></td></tr>
<tr><td>Serial Input of Address</td><td>Select the condition after the inputting the relay address /register address etc.
<table>
<tr><th>Select item</th><th>Content</th></tr>
<tr><td>Do</td><td>The next element will automatically be on the waiting list for inputting address.</td></tr>
<tr><td>Undo</td><td>The next element will not automatically be on the waiting list for inputting address.</td></tr>
</table></td></tr>
<tr><td>Double Click</td><td>Select the condition after double clicking at the instruction cell.
<table>
<tr><th>Select item (content)</th></tr>
<tr><td>Becomes Address Input.</td></tr>
<tr><td>Changes Instruction at Cell</td></tr>
</table></td></tr>
<tr><td>Widen /Narrow Application Instruction's Frame</td><td>For the application instruction frame of several instructions, select several operation contents at the time of enlarge/contract of the display frame to the vertical direction.
<table>
<tr><th>Select item (content)</th></tr>
<tr><td>Process with Row Data</td></tr>
<tr><td>Process Application Instruction only</td></tr>
</table></td></tr>
</table>

･For more details, refer to the pages 6-4 to 17.

(2) Operation content

If you click [Setup Input Type] by the [Setup] menu, [Setup Input Type] dialog box will be displayed.



・Select "Input Mode," "Serial Input of Address", "Double Click," "Widen /Narrow Application Instruction's Frame" at each check box.

■ Setup Display (Program: Ladder)

(1) Function

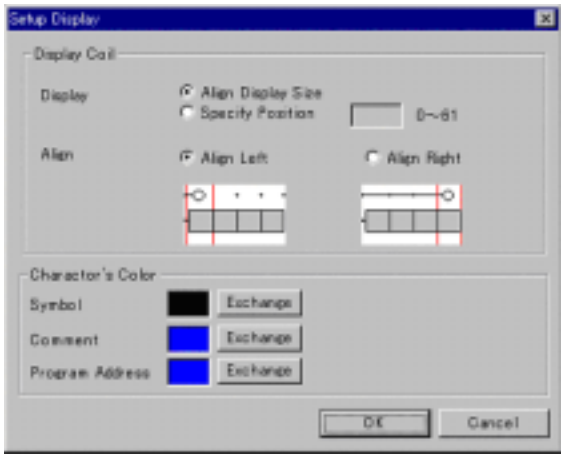
Assign the display position of the coil (OUT instruction), TMR /CNT instruction, application instruction.

<table>
<tr><th>Operation item</th><th>Operation Content</th></tr>
<tr><td>Display Position</td><td>Assign the display position of the coil (OUT) instruction.
<table>
<tr><th>Select item</th><th>Content</th></tr>
<tr><td>Align Display Size</td><td>If the setup of【align position】of the next chart is "align left," the fourth cell from the right of the screen will become the screen display position of the coil. If it is "align right", the first cell from the right of the screen will become the display position of the coil.
If the number of contacts of the horizontal direction are more than the screen size, the display position of the coil will be decided according to the number of contacts. (Coil display position will be set outside the screen.)</td></tr>
<tr><td>Specity Position</td><td>Assign the display position of the coil with the row number (0 to 61).
If the number of contacts of the horizontal direction are more than the screen size, the display position of the coil will be decided according to the number of contacts.</td></tr>
</table></td></tr>
<tr><td>Align Position</td><td>Assign the display position of TMR /CNT, application instruction number.
<table>
<tr><th>Select item</th><th>Content</th></tr>
<tr><td>Align Left</td><td>Set at the display position of coil (OUT instruction).</td></tr>
<tr><td>Align Right</td><td>Set at the fourth position from the left of the display.</td></tr>
</table></td></tr>
<tr><td>Character color</td><td>Specify the color of symbol, comment (including line comments) or program address.</td></tr>
</table>

・For the setup example, refer to the page 6-36.

(2) Operation content

If you click [Setup Display Pattern] at the [Setup] menu, [Setup Display Pattern] dialog box will be displayed.



・Select either ""Display" or "Align" at each check box.

・If the "Display" is checked under "Specity Position", input the row number (0 to 61).

・If you click the [Exchange] button of "Symbol," "Comment,"or "Program Address" under the Character Color, the [Select of Colors] dialog box will be displayed. Select the color you want to set, and click [OK].

■ Key Assignment (Program:Ladder)

(1) Function

Set up the short cut key assignment when the ladder mnemonics is input.

(2) Operation content

Click [Key Layout] in the [Setup] menu. The [Key Layout] dialog box will be displayed.

① Select the combo-box of the ladder mnemonics you will assign the key to, and input the character or the key with the keyboard or select it in the drop-down list.

・The keys you can assign are A to Z (26 keys), 0 to 9 (10 keys), or F2 to F9 (8 keys).

② If you click the [Default] button, the setup information gets back to the default value (same as JW-50SP).

③ Click [OK].

⇒ The setup is completed.

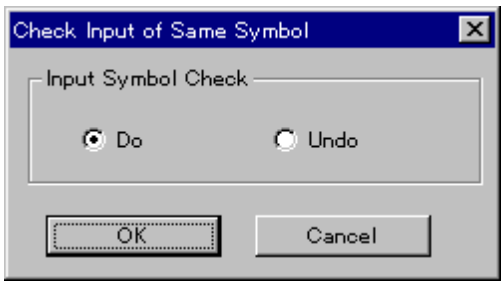
■ Check Input of Same Symbol (symbol)

(1) Function

If there is the same symbol at the different data memory address when registering the symbol, select either do /undo for "check input of same symbol."

(2) Operation content

If you click [Check Input's of Same Symbol] by the [Setup] menu, [Check Input of Same Symbol] dialog box will be displayed.



Select from the check box of "Check Input of Same Symbol."

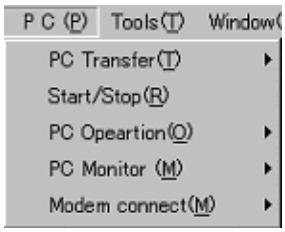
Do ：If you input the same symbol, the dialog box of the confirmation for register will be displayed. Click [OK] button for the register.

Undo：Register the symbol no matter what.

5-7 PC (Main/Program/System/Data/Symbol/Parameter)

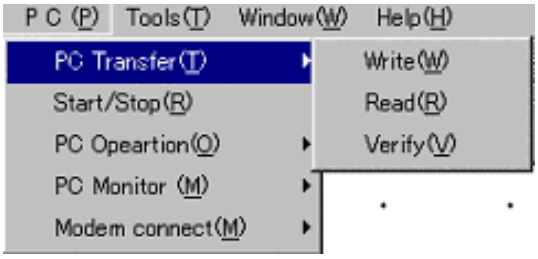
If you click [PC] by the menu bar of each window, [PC] menu summary will be displayed.

(Details in pages)
5-59
5-62
5-62
5-69
5-72



■ PC Transfer (Main/Program/System/Data/Symbol/Parameter)

If you click [PC Transfer] by the [PC] menu, [PC Transfer] menu will be displayed.



(1) Function

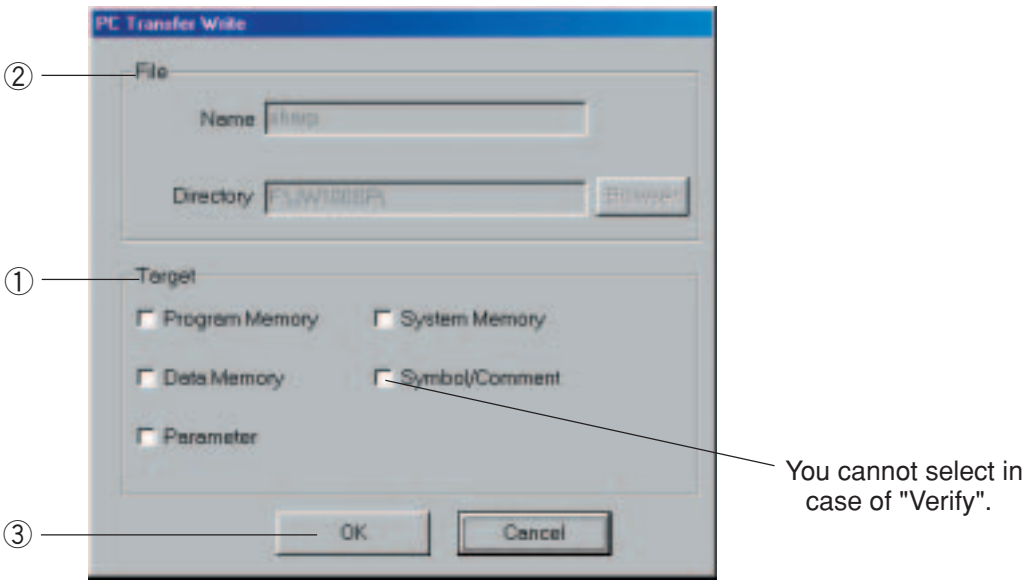
Transfer (write /read /verify) the program, etc, with the connected PC.

Item	Content
Write	Write data of the program, etc to the PC. ・The Main window does not have this item.
Read	Read data of the program, etc from the PC. ・In the Main window, input the file name, and determine the folder.
Verify	Verify data of the program, etc with the PC. ・The verifying area of the system memory is #200 to #256. ・You cannot compare symbol/comment. ・The Main window does not have this item.

(2) Operation content

If you click [Write], [Read] or [Verify] by the [PC Transfer] menu, [PC Transfer] dialog box will be displayed.

Dialog box when writing



① Assign the Target of PC transfer

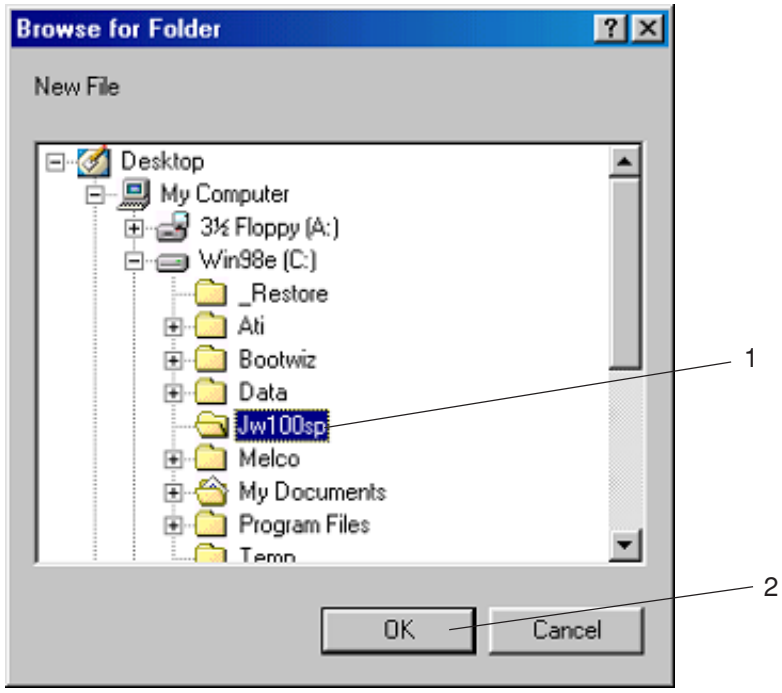
If you click the check button of program memory, system memory, data memory, symbol/comment, parameter, they become the targets of PC transfer.

・You cannot select symbol/comment in case of [Verify].

② Input the filename, and determine the folder (valid only in [Write] of the Main window)

・In the Main window (when a file is not open), when the [PC Transfer Read] dialog box appears by selecting [PC Transfer]-[Read], the "File" item is enabled.

・If you click [Browse] on the right of [Directory], the [Browse for Folder] dialog box will be displayed.



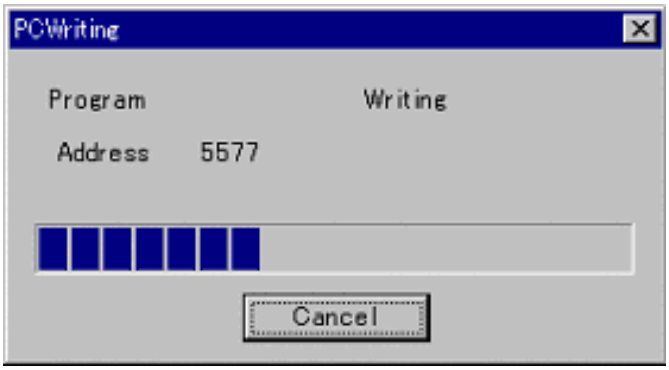
1. Select the folder.
2. Click [OK].

③ Click [OK]

⇒ Start the PC transfer of the assigned object.

・If the object is the "data memory," [Select File] dialog box will be displayed before the transfer, and you can assign the file number of the object of transfer.

・ You can observe the progression of transfer in the transfer dialog box.



■ Run /Stop (Main/Program/System/Data/Symbol/Parameter)

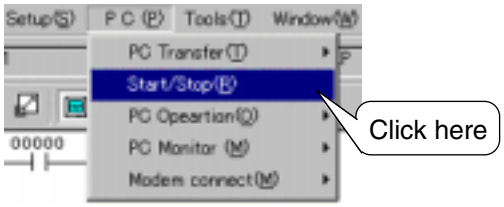
(1) Function

Run /stop the connected PC.

・Check automatically the run /stop condition of the PC, and when the PC is "running," it stops, and when the main PC is "stopping," it runs.

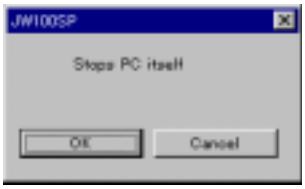
(2) Operation content

Click [Start /Stop] by the [PC] menu of each window.

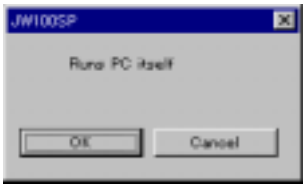


⇒ When the PC is running /stopping, the following confirmation dialog box will be displayed.

Running



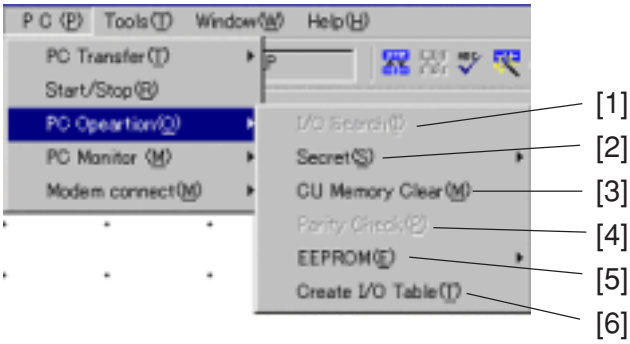
Stopping



If you click [OK] button, the PC will stop when "running," and the main PC will run when "stopping."

■ PC Operation (Main/Program/System/Data/Symbol/Parameter)

If you move the cursor to the [PC Operation] of PC menu, [PC Operation] menu will be displayed.



Model	Item of PC operation					
	I/O search	Secret	CU Memory Clear	Parity Check	EEPROM	I/O Table
JW20/20H J-board (Z-311J/312J/313J)	—	—	○	○	○	○
JW50/70/100	○	—	○	○	○	—
JW50H/70H/100H	○	—	○	○	○	—
JW30H J-board (Z-511J/512J)	—	○	○	—	○	○
JW10	—	○	○	—	○	—
W100	—	—	○	○	—	—
W70H/100H	—	—	○	○	—	—
W16/51	—	—	○	○	—	—
VME Built-in Controller	—	○	○	—	○	○

○: model of the operation object

[1] I/O Search (JW50/70/100,JW50H/70H/100H)

(1) Function

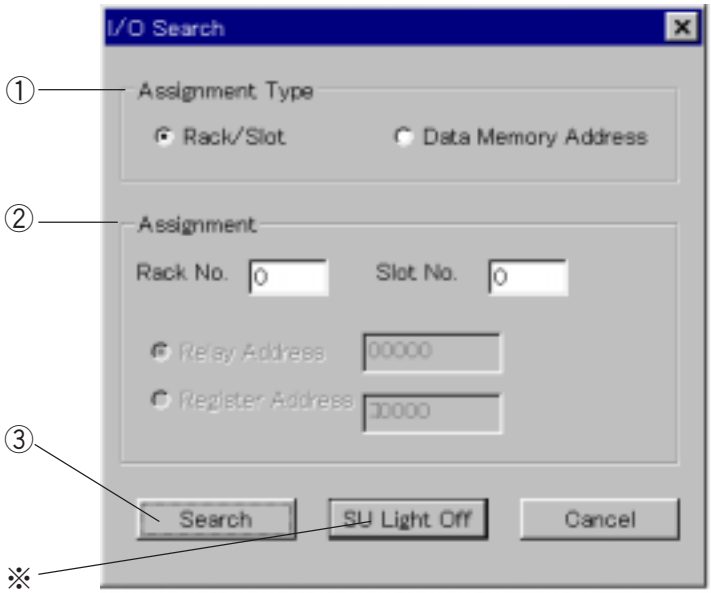
Assign the rack number (the number of basic panel) /slot number and LED check the assigned I/O module.

Also, it is possible to LED check the I/O module that corresponds to soon to be assigned data memory address.

Operation item		Setup content
Assign methods	Rack / slot	Rack number, Slot number
	Data memory address	Relay address or register address

(2) Operation content

If you click [I/O Search] by the [PC Operation] menu, [I/O Search] dialog box will be displayed.



① Select assignment type

Select "Rack/Slot" or "Data Memory Address"

② Setup "Assignment"

When the assignment type is "Rack/Slot," setup "Rack No., Slot No.", and when the assignment type is "Data Memory Address," setup "Relay Address" or "Register Address."

③ Click [Search]

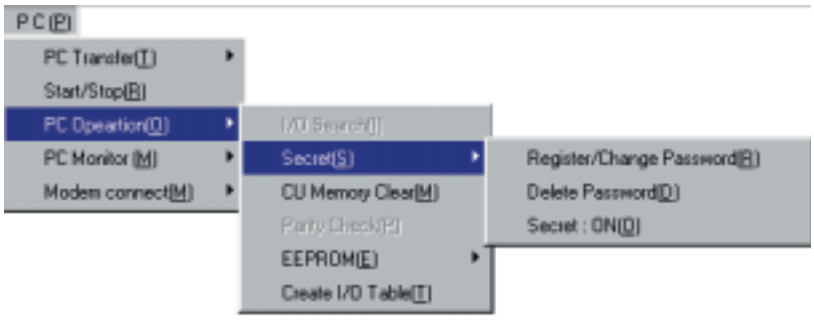
⇒ Start I/O search

※ SU Light Off

As the result of I/O search, lighted SU lamp of the I/O module will be turned off when [SU Light Off] is clicked.

[2] Secret (JW10, JW30H, J-board(Z-511J/512J), VME Built-in Controller)

If you move the cursor to [Secret] of the [PC Operation] menu, [Secret] menu will be displayed.

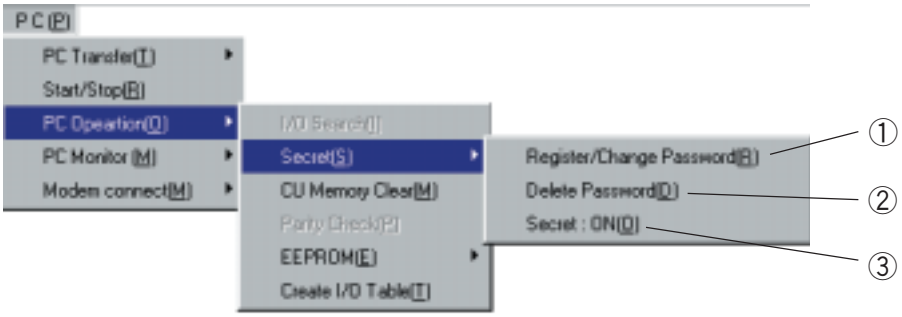


(1) Function

Activate the register /change ,delete, secret ON of the password of the PC.

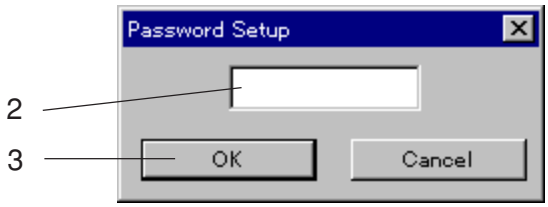
Item	Content
Register/change Password	Register the password that will be used as the secret function at the PC. Also, change the registered password.
Delete Password	Delete the password used at the secret function from the PC.
Secret ON	Validate the secret function of the PC.

(2) Operation content



① Register/change password

1. Click [Register/change Password]
   ⇒ "Password Setup" dialog box will be displayed.



2. Input password
   Use alphabetical 4-digit number for "Register/Change."
   However in case of using the handy programmer, use the area of "0 to 9" and "A to F."
3. Click [OK].
   ⇒ password will be changed /registered.

② Delete password

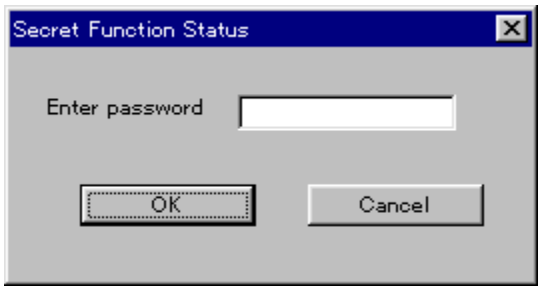
If you click [Delete Password] , the dialog box confirming the erase will be displayed. If you click [OK] , the password will be erased.

③ Secret ON

If you click [Secret ON] , the dialog box confirming the secret ON will be displayed. If you click [OK] , the secret function will be validated.

●Secret OFF operation

When the PC is under the secret ON condition, you need to release the secret ON (secret OFF) to do processing with the PC. Input the registered password when the following dialog box asking to input the password for starting the communication with the PC is displayed.



If you input the password, the secret will be released, and it will remain under the secret OFF condition until it will be activated (secret ON).

Notes

・If you forget the password, you will not be able to communicate with the PC as a whole. Write down and keep the password somewhere safe.

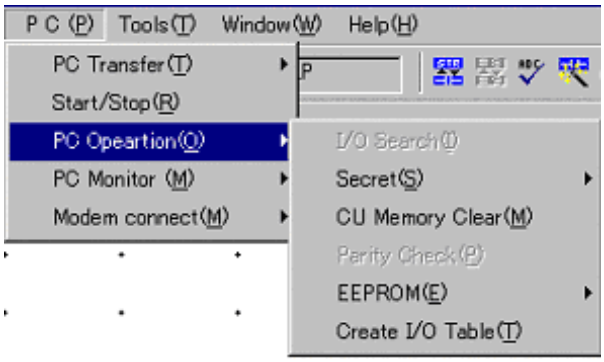
[3] CU Memory Clear (whole model)

(1) Function

Initialize (clear) the memory of the connected PC, and activate I/O register .
However, this function is valid when the PC is stopping.

Memory	Initialization Content
Program Memory	Clear
Data Memory	All 00
System Memory	Initial value
I/O register	On

(2) Operation content



If you click [CU Memory Clear], the dialog box confirming the clear operation will be displayed.

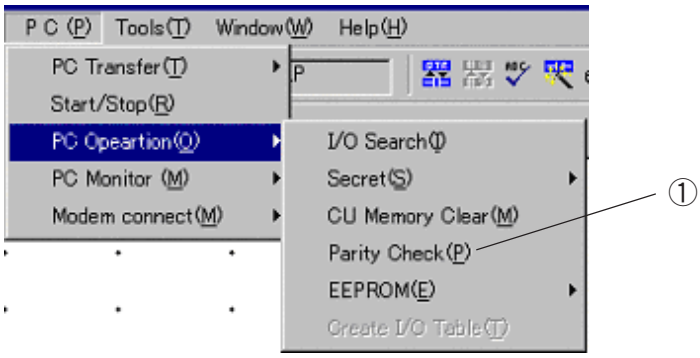
・ If you click [OK], the clear operation will be executed.

[4] Parity Check (JW20/20H, J-board(Z-311J/312J/313J), JW50/70/100, JW50H/70H/100H, W100, W70H/100H, W16/51)

(1) Function

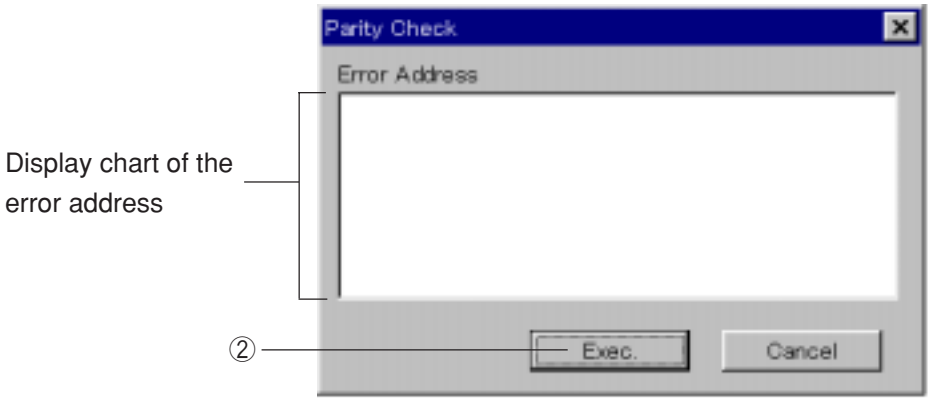
Execute the parity check of the connected PC, and confirm "yes/no" of the error.

(2) Operation content



① Click [Parity Check]

⇒ The [Parity Check] dialog box will be displayed.



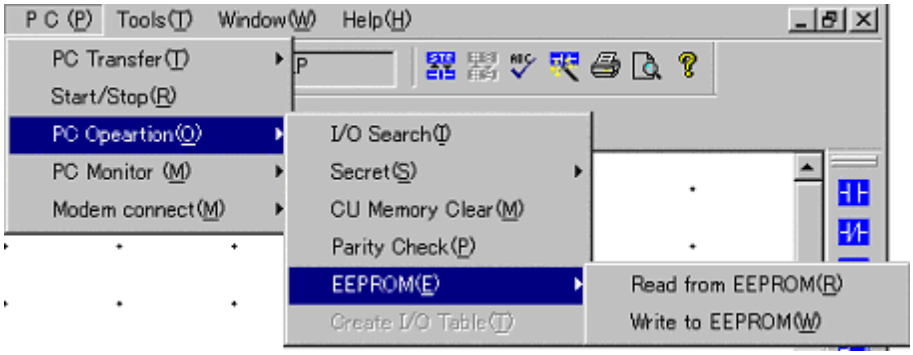
② Click [Exec.]

⇒ The parity check will be executed (started).

・As the result of check, all the addresses in which errors occurred will be displayed.

[5] EEPROM (JW20/20H, JW50/70/100, JW50H/70H/100H, JW30H, JW10, J-board, VME Built-in Controller)

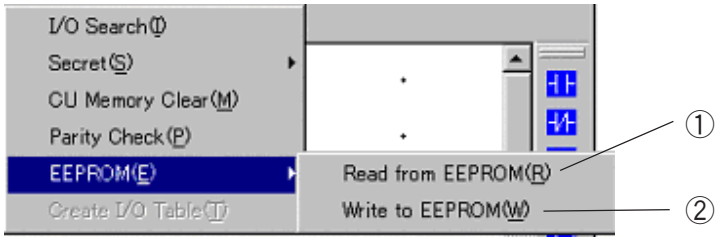
If you move the cursor to the [EEPROM] of the [PC Operation] menu, [EEPROM] menu will be displayed.



(1) Function

Activate the prepared EEPROM (in case of JW30H, flash ROM) and read/write to the connected PC.

(2) Operation content



① Read from EEPROM

1. Click [Read from EEPROM]
   ⇒ The confirmation dialog box for "reading" will be displayed.
2. Click [OK]
   ⇒ Start "reading" from EEPROM

② Write to EEPROM

1. Click [Write to EEPROM]
   ⇒ The confirmation dialog box for "writing" will be displayed.
2. Click [OK]
   ⇒ Start "writing" to EEPROM.

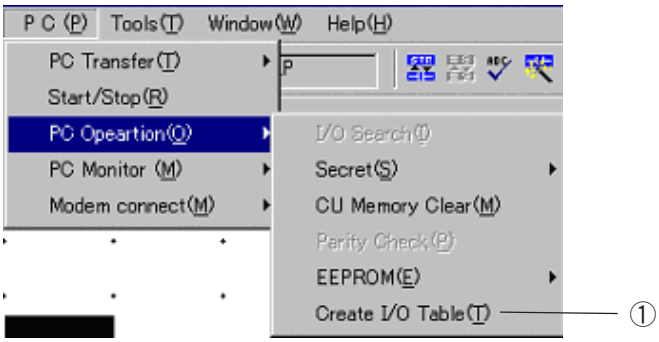
[6] I/O Table Automatic Registration (JW20/20H, JW30H, J-board, VME Built-in Controller)

Read I/O register and registered I/O table information of the connected PC.
If you move the cursor to [I/O Table] of the [PC Operation] menu, [I/O Table] menu will be displayed.

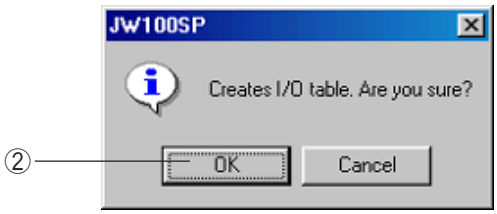
(1) Function

Automatically register the I/O table of the connected PC.

(2) Operation



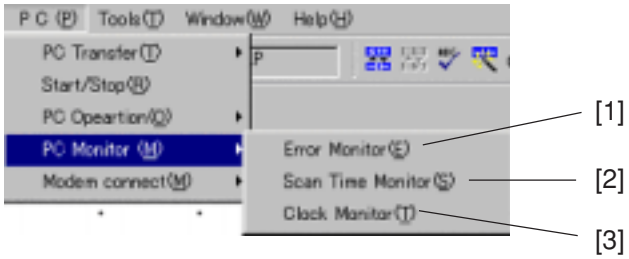
① Click [I/O Table Automatic Registration].
⇒ The dialog box confirming creation of the I/O table is displayed.



② Click [OK].
⇒ The I/O table is registered in the system memory of PC.

■ PC Monitor (Main/System/Data/Symbol/Parameter)

If you move the cursor to [PC Monitor] of the [PC] menu, [PC Monitor] menu will be displayed.



[1] Error Monitor

(1) Function

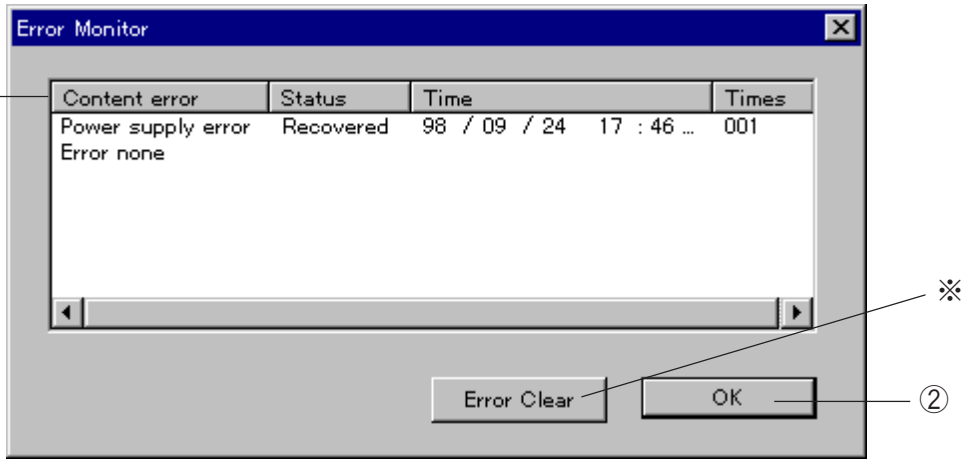
Monitor abnormal information of the connected PC.

- The monitor contents include: abnormal content, current condition, occurrence time, and the number of occurred error.
- You can also clear the abnormal history that is stored in the PC.

(2) Operation content

① Click [Error Monitor]

⇒ [Error Monitor] dialog box will be displayed.



Item	Display content
Abnormal	Abnormal content
Status	Currently "abnormality occurring" or "recovered from abnormality."
Time	The occurrence time of abnormality (displays the time of the very first occurrence if several abnormalities occur) ・The time is displayed correctly only when the correct time was setup in the PC that contains the calendar clock.
Times	The number of occurred error

※ If you click [Error Clear] , the abnormal history that is stored in the PC will be cleared.

② Click [OK]

⇒ The [Error Monitor] dialog box will close.

[2] Scan Time Monitor

(1) Function

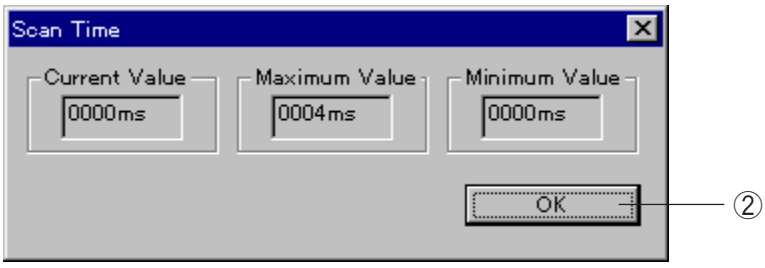
Monitor the scan time of the connected PC.

・The monitor contents include: maximum value, minimum value, and current value.

(2) Operation content

① Click [Scan Time Monitor]

⇒ The [Scan Time] dialog box will be displayed.



② Click [OK]

⇒ The [Scan Time] dialog box will close.

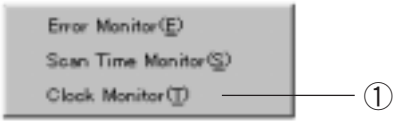
[3] Clock Monitor

(1) Function

Monitor the internal clock to the connected PC.

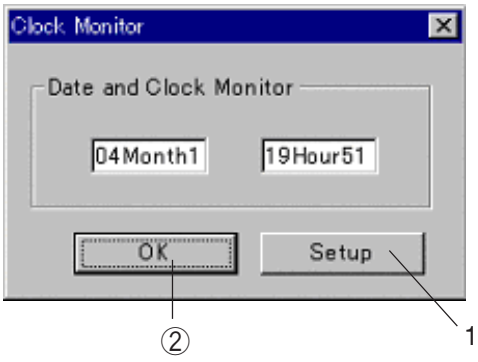
- display /setup the date and time.
- You can not "clock monitor" in the PC model that does not carry the clock function.

(2) Operation content



① Click [Clock Monitor]

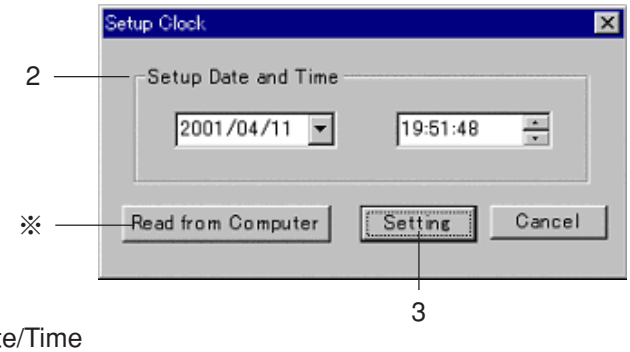
⇒ The [Clock Monitor] dialog box will be displayed, and you can monitor the date/time.



● In case of setting up date/time

1. Click [Setup]

   ⇒ [Setup Clock] dialog box will be displayed.



2. Setup Date/Time

   Place the cursor at the item you want to change, and input the value.

   - If you click ▼on the right of the date box, the calendar will be displayed, and you can select the date.

   - ※If you click [Read from Computer], the date/time set in the computer will be input.

3. Click [Set]

   ⇒ The date/time set in the system memory of the PC will be written.

② Click [OK]

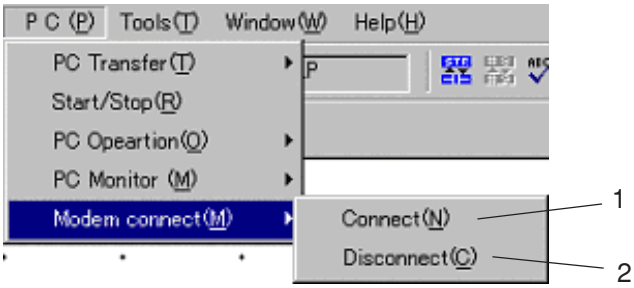
⇒ The [Clock Monitor] dialog box will close.

■ Modem Connection (JW50/70/100, JW50H/70H/100H, W70/100H)

(1) Function

Connect to the network module through the modem.

(2) Content



Note: Before connecting the modem, set up the modem by selecting [Setup]-[Communication Setup]. (Refer to page 5-51)

1. Connection

Call the telephone number you set by selecting [Setup]-[Communication Setup].

After the connection, you can operate just like when connecting to the network.

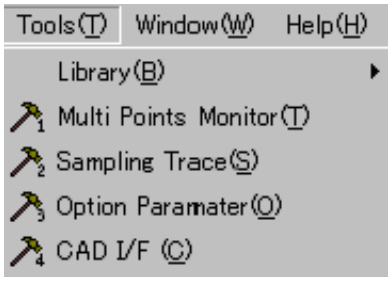
・Once connected, the line continues to be connected without regard to operation of the PC or monitor.

2. Disconnection

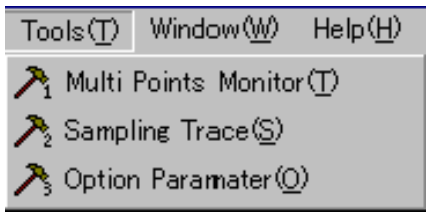
Disconnect the telephone line in communication.

5-8 Tool (Main/Program/Symbol/Data/System/Parameter)

・Program:Ladder

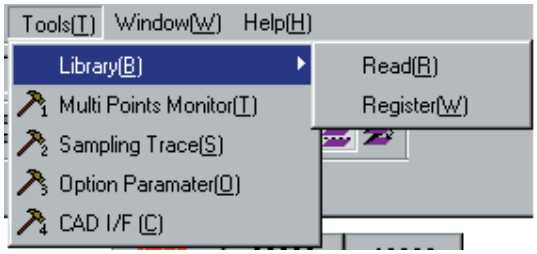


・ Main/Program:Mnemonics/System/Data/Symbol/Parameter



■ Library (Program:Ladder)

You can create the library, read the file, or save the file in the Library window.



● Library

Item	Display Content
Read	If you click [Library]-[Read], the Library window will be displayed. If you click [File]-[Read] in the Library window, the [Read Library File] dialog box will be displayed. You can select and read the file in this dialog box. You can read files of models you set in the Library window. The expansion of readable files is the same with that of the LB2 library files.
Register	If you click [Library]-[Register] after selecting lines to be registered in the Program:Ladder window, the Library windows will be displayed with the selected lines copied. If you click [File] -[Save As] in this window, the [Register Library Files] dialog box will be displayed, and you can save file with an appropriate name.

For the detail of Library, refer to Chapter 6.

■ Multipoints Monitor (Main/Program/Symbol/Data/System/Parameter)

In the [Multipoints Monitor] window, you can monitor any data of data memory or system memory. For the detail of multipoints monitor, refer to "Chapter 8 Monitor".

■ Sampling Trace (Main/Program/Symbol/Data/System/Parameter)

In the [Sampling Trace] window, you can see ON/OFF information of PC or contents of the register by time charts. For the detail of sampling trace, refer to "Chapter 8 Monitor".

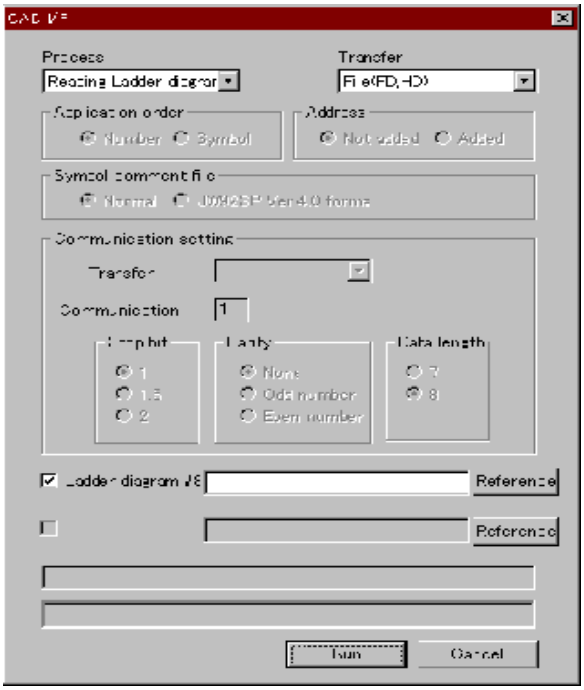
■ Option Parameter (Main/Program/Symbol/Data/System/Parameter)

In the [Option Parameter] window, you can set up parameters of models that save the parameters in the option modules. For the detail of option parameter, refer to "Chapter 7 Setup Each Data".

CAD interface (Program : Ladder)

This mode is used to transfer data between the system and a host computer (such as a CAD system). First, the system converts programs and/or the symbol comments into character strings. Then it transfers them through an RS-232C interface or a floppy (hard) disk based on the settings of the communication parameters.
For details about the communication format, see the instruction manual for the CAD interface.

There are two methods to transmit data: through a communication port (RS-232C) and using a floppy (hard) disk. On the [Program: Ladder] window, select [Tools] and [CAD I/F] from the menu bar, and the [CAD I/F] dialog box will appear. Operate the data transfer with this dialog box.



(1) When you use the communication port

Select "Communication Port" on the "Transfer" item and specify "Communication setting" as the same as the settings in the CAD system.
The data transmission speed can be specified between 110 and 256,000 bps. However, you may not be able to select some speeds depending on the model of your personal computer. For details, see the instruction manual for the personal computer.
Select the RS-232C port for the communication port.
Specify each item of stop bit, parity, and data length appropriately.

(2) When you use a floppy (hard) disk

Select "File (FD, HD)" on the "Transfer" item. Enter a file name or click the "Reference" button to show the files currently available, and select one.
File extensions are as follows:

Ladder diagram with address: .awl
Ladder diagram: .lac
Symbol/comment (normal): .cmt
Symbol/comment (JW-50SP Ver.4.0): .c40

(3) Read/write a ladder program

Select either "Reading Ladder diagram" or "Writing Ladder diagram" on the "Process" item.
When you select "Reading Ladder diagram," the system will read the ladder diagram from a CAD system or a floppy (hard) disk. When you select the "Writing Ladder diagram," the system will write the ladder diagram to the CAD system or the floppy (hard) disk. When you want to read or write application instructions (specify numbers or symbols), specify without or with address, or if the memory volume of the program exceeds 39.0 K-bytes, select the file number 8 or 9 of the ladder diagram read/write, then click the [Run] button.

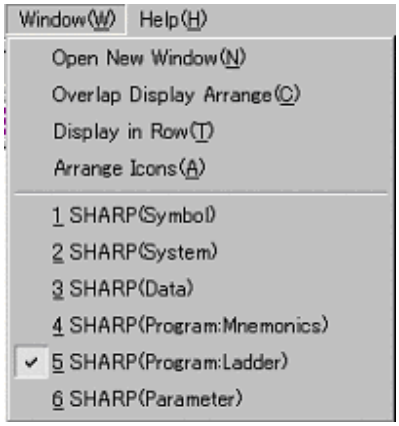
(4) Read/write a symbol/comment

Select either "Read Symbol/Comment" or "Write Symbol/Comment" on the "Process" item.
When you select the "Read Symbol/Comment," the system will read a symbol or comment from the CAD system or the floppy (hard) disk. When you select the "Write Symbol/Comment," the system will write a symbol or comment to the CAD system or the floppy (hard) disk. Select either the normal format (symbol; one-byte 16 characters, comment; one-byte 28 characters) or JW-50SP Ver.4.0 format (symbol; one-byte six characters, comment; one-byte 24 characters) for the symbol/comment file format. Then click the [Run] button.

5-9 Window (Program/System/Data/Symbol/Parameter)

If you click [Window] by the menu bar of each window, the [Window] menu will be displayed.
At the [Window] menu, you can operate the display method of several windows.

(Details in pages)



5-77
5-78
5-79
5-80
5-81

※ The above display is the case when the project name is "abc."

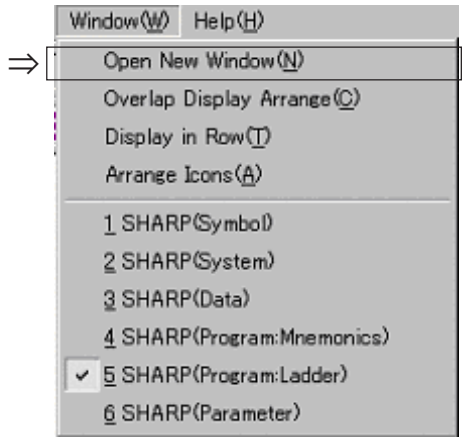
■ Open New Window (Program/System/Data/Symbol/Parameter)

(1) Function

Open an another window that display the same content as the active window.

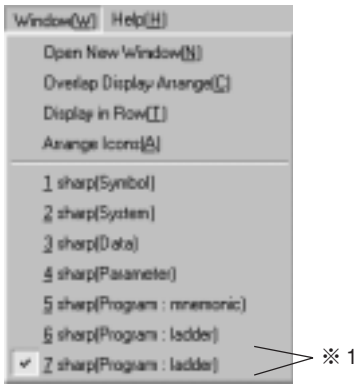
- You can open several windows for a file, and you can also display parts of the file to each window.
- If you modify the content of the file in a window, all the windows that display the file will reflect the change. However, in the program (ladder/mnemonic) window, the change will be reflected after the modification. (Refer to the page 6-46)
- If you open the new window, the window becomes active, and it will be displayed in the front of the screen.

(2) Operation Content

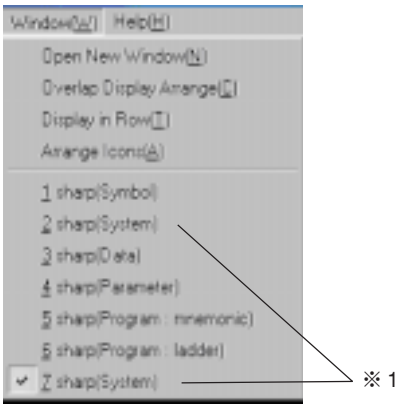


If you click [Open New Window], a new window that contains the same content of the displaying window will open.

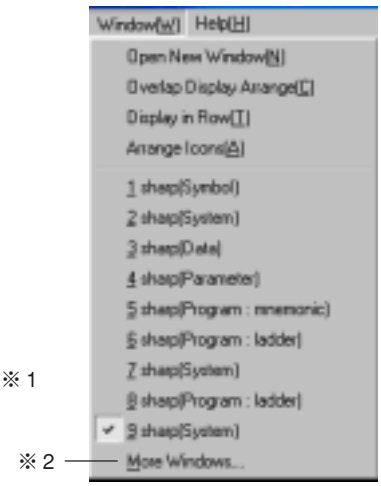
- A display example of the case when operated by the program (ladder/mnemonic)



- A display example of the case when operated by the system.



- A display example when the window number exceeds more than 10.



※1 "1,2,3,…" after the window names suggests the order number of every opening window.

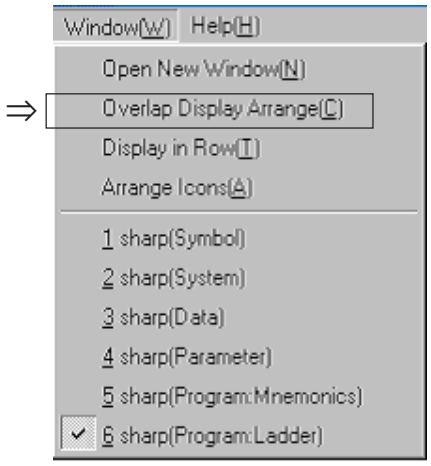
※2 If the opened windows exceed more than 10, click [More Windows], and select the window from the [Select Window] dialog box.

■ Overlap Display (Program/System/Data/Symbol/Parameter)

(1) Function

Display several windows in a pile.

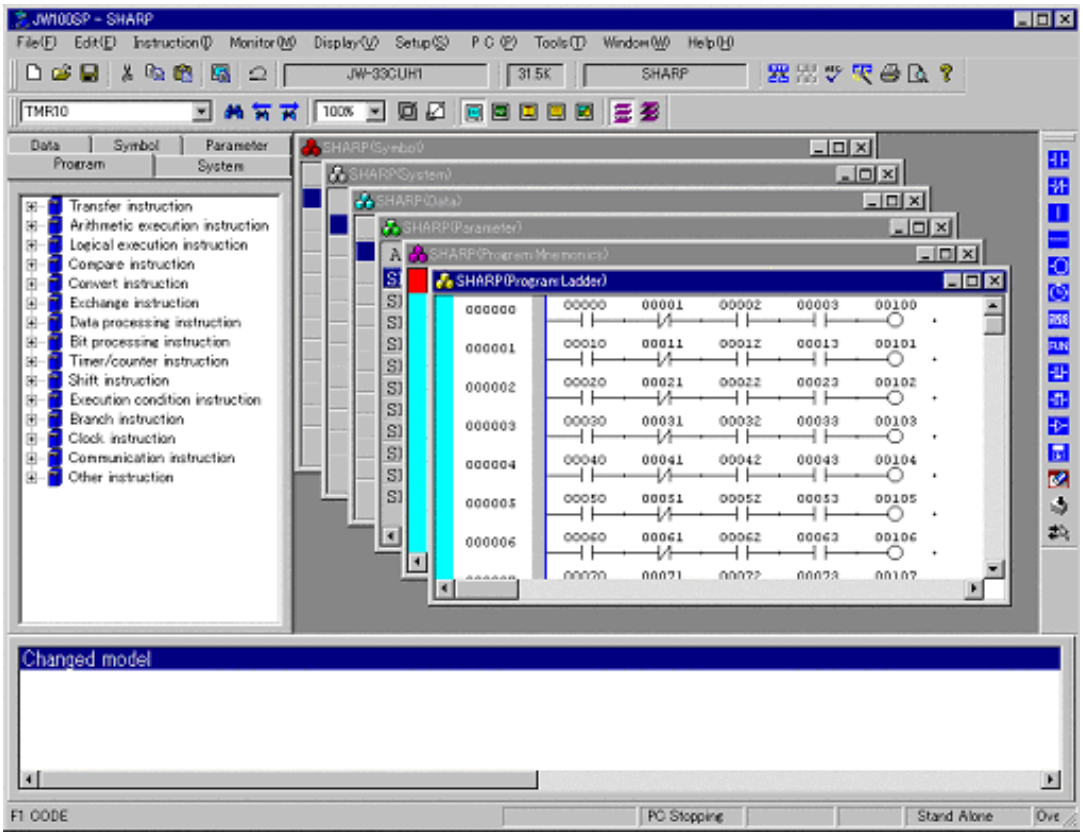
(2) Operation content



If you click [Overlap Display Arrange], several windows will be displayed in pile.

· The active window will be displayed in the front.

(Display example)

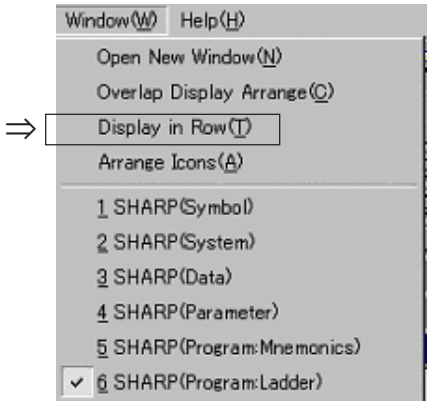


■ Cascade Display (Program/System/Data/Symbol/Parameter)

(1) Function

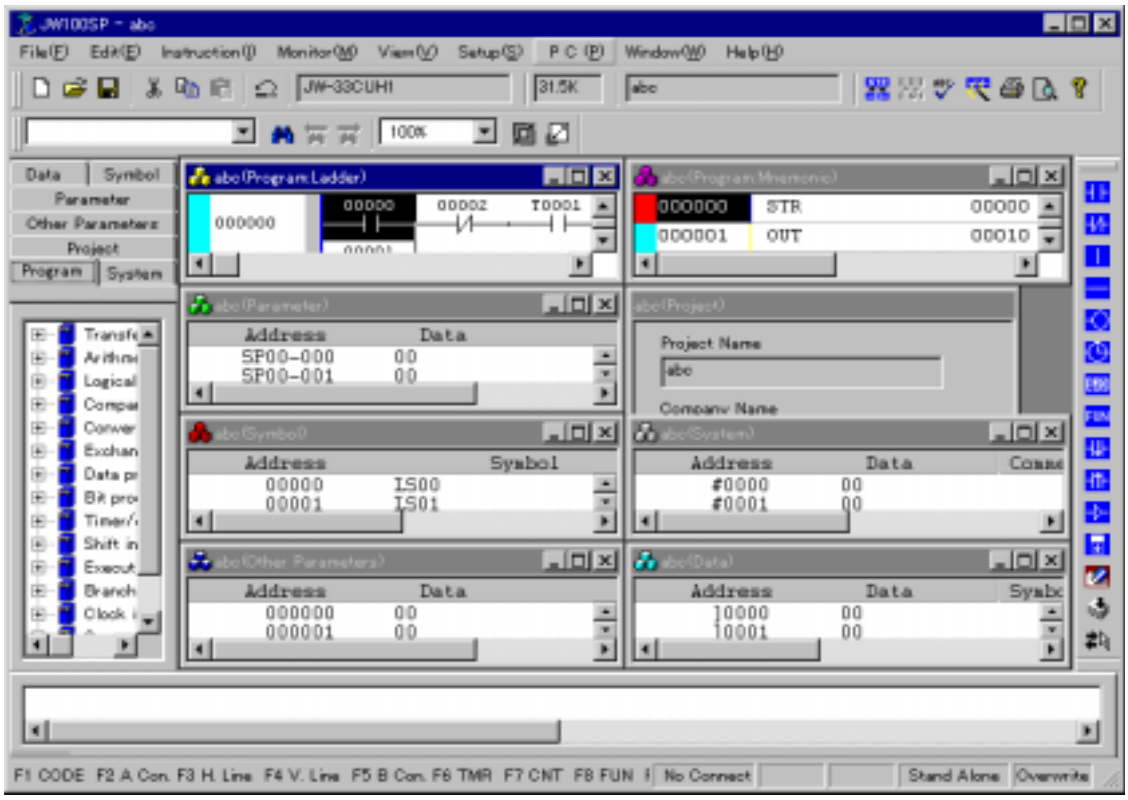
Display several windows in a row.

(2) Operation content



If you click [Display in Row], several windows will be displayed in a row.

(Display example)

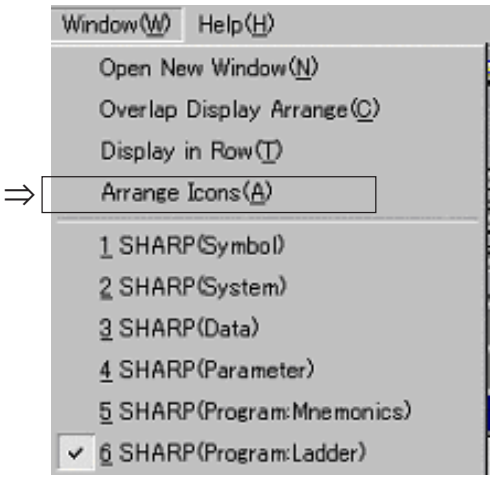


■ Arrange Icons (Program/System/Data/Symbol/Parameter)

(1) Function

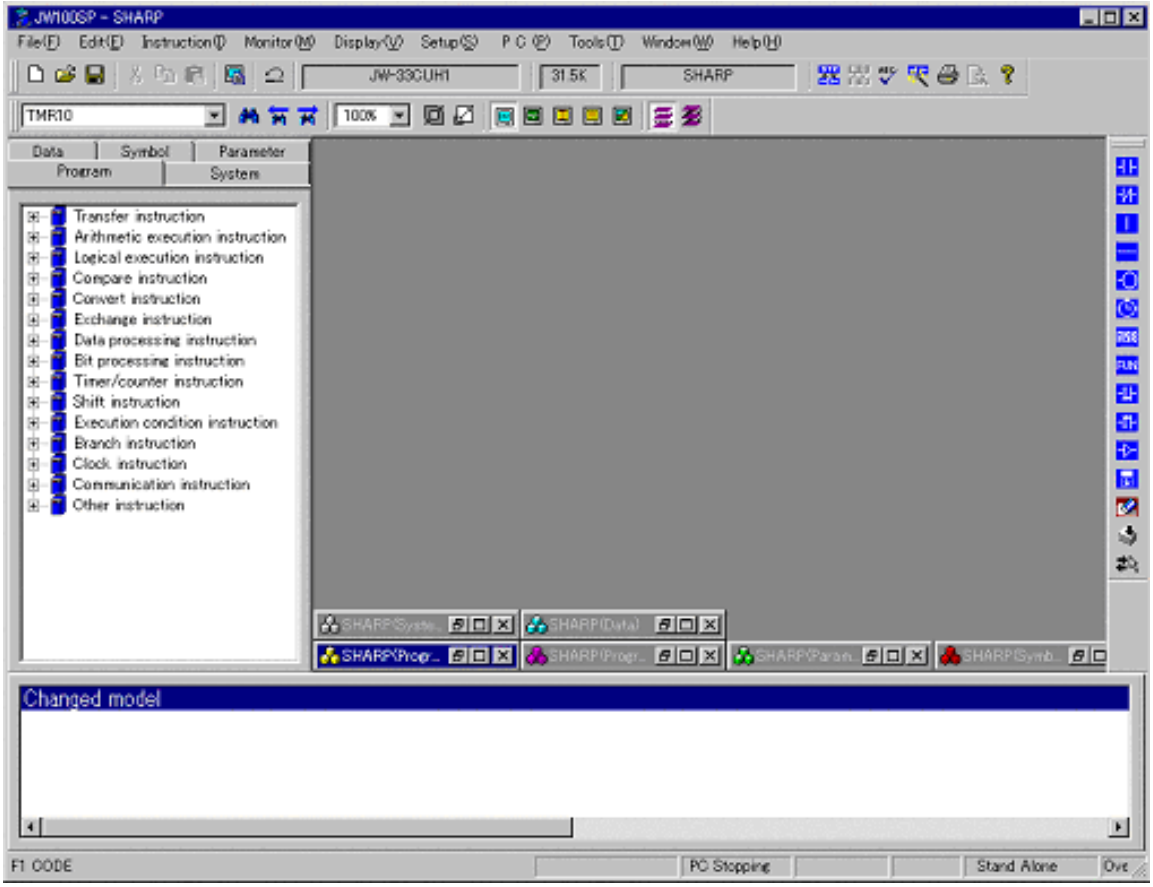
Arrange icon at the below of the window.

(2) Operation content



If you click [Arrange Icons], the icons will be arranged.

(Display example)



- Iconized windows will be arranged at the bottom of the main window.
- If the basic window is open, and that this window is at the bottom of the main window, you can not see the icon under this window.

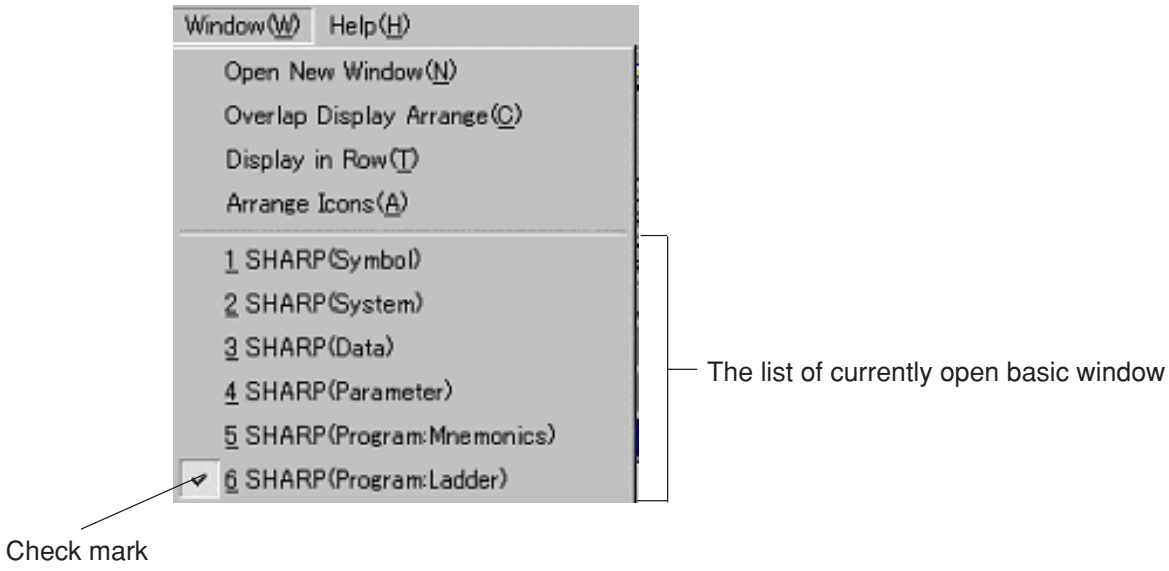
■ Window Name 1,2,···

(1) Function

Display the assigned window.

・The list of currently open basic window will be displayed at the below of the [Window] menu.

・A check mark will be displayed besides the name of currently active basic window.



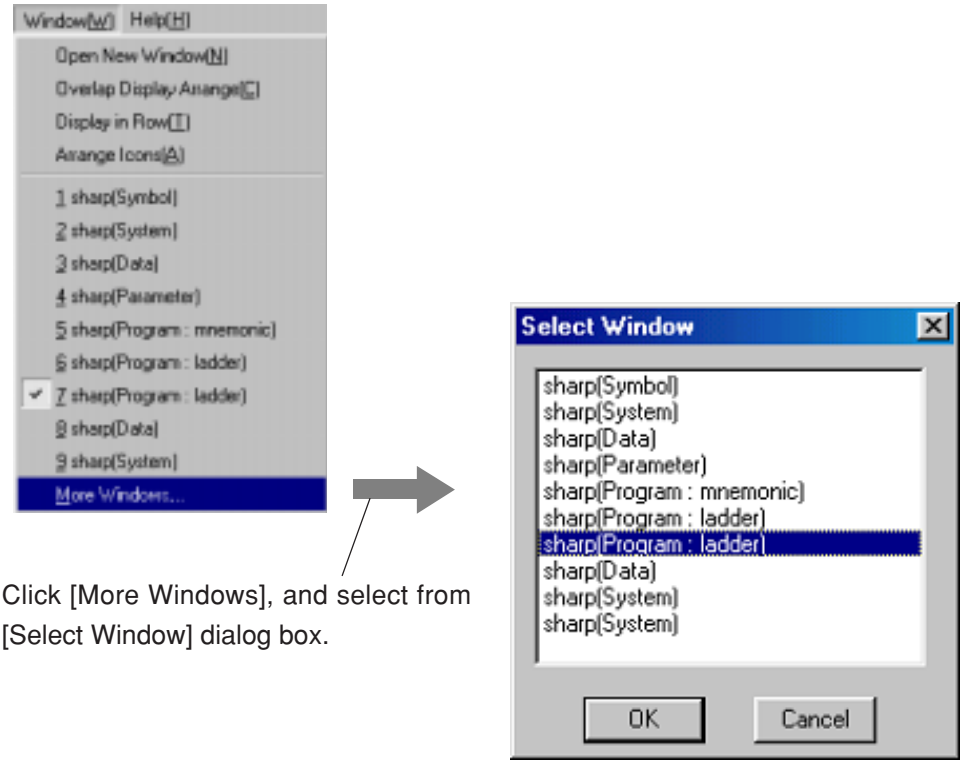
(2) Operation content

Click the window name [1,2,···] of the [Window] menu.

⇒ The assigned window will be displayed.

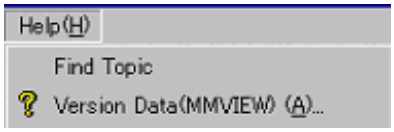
・If more than 10 windows are open, [More Windows] will be displayed.

(Display example)



5-10 Help (Main/Program/System/Data/Symbol/Parameter)

If you click [Help] from the menu bar of each window, the [Help] menu will be displayed.

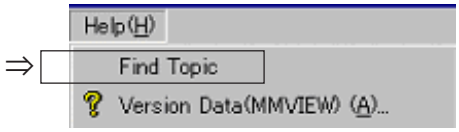


■ Find Topic

(1) Function

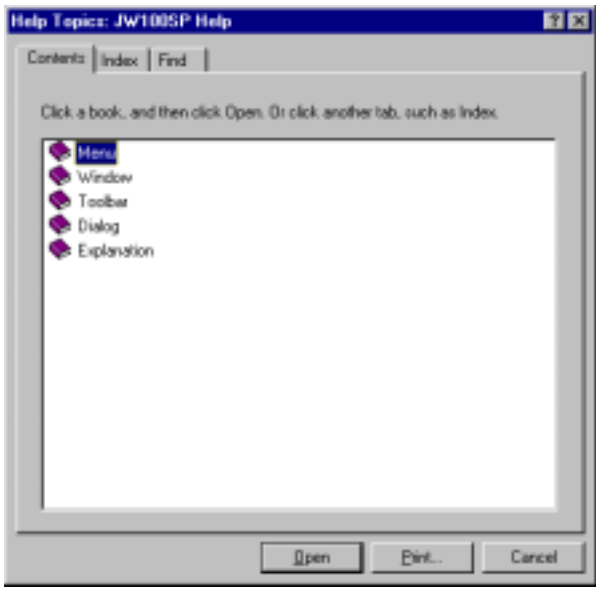
Display help on the assigned item by the table of “contents /keyword”.

(2) Operation content

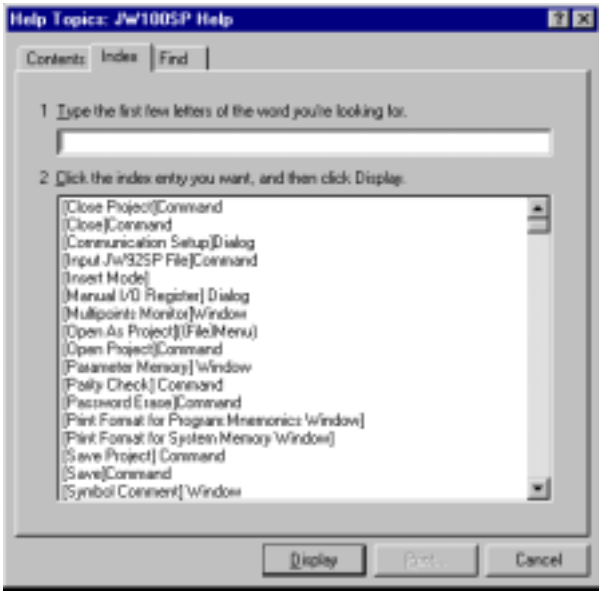


If you click [Find Topic], [Find Topic] dialog box will be displayed.

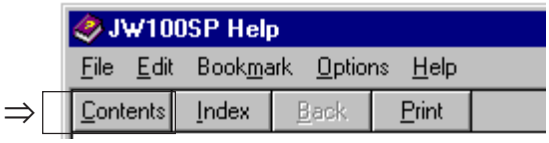
● Display at the time of selecting “Contents”.



● Display at the time of selectin “Index”.


Help Topics: JW100SP Help
Contents
Index
Find
1 Type the first few letters of the word you're looking for.
2 Click the index entry you want, and then click Display.
Display
Cancel

- If you keep clicking on the item to find, you can refer to the “help” of the related information, like operation order /reference.
- After referring to the help content, click [Contents] of the “help window” to go back to the first screen.

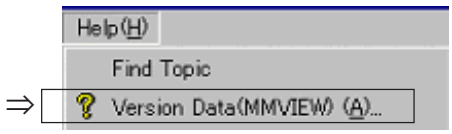


■ Version Data

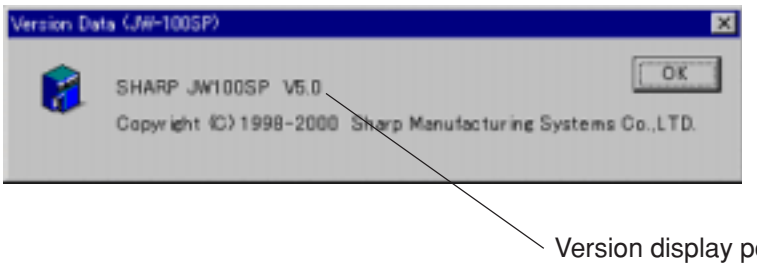
(1) Function

Display the version information of JW-100SP.

(2) Operation content

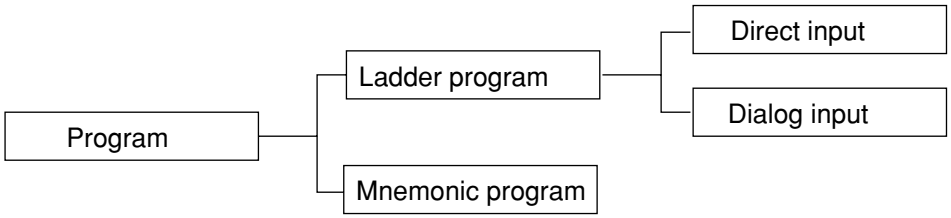


If you click [Version Data (MMVIEW)], the [Version Data (JW-100SP)] dialog box will be displayed.



Chapter 6 Program Edit

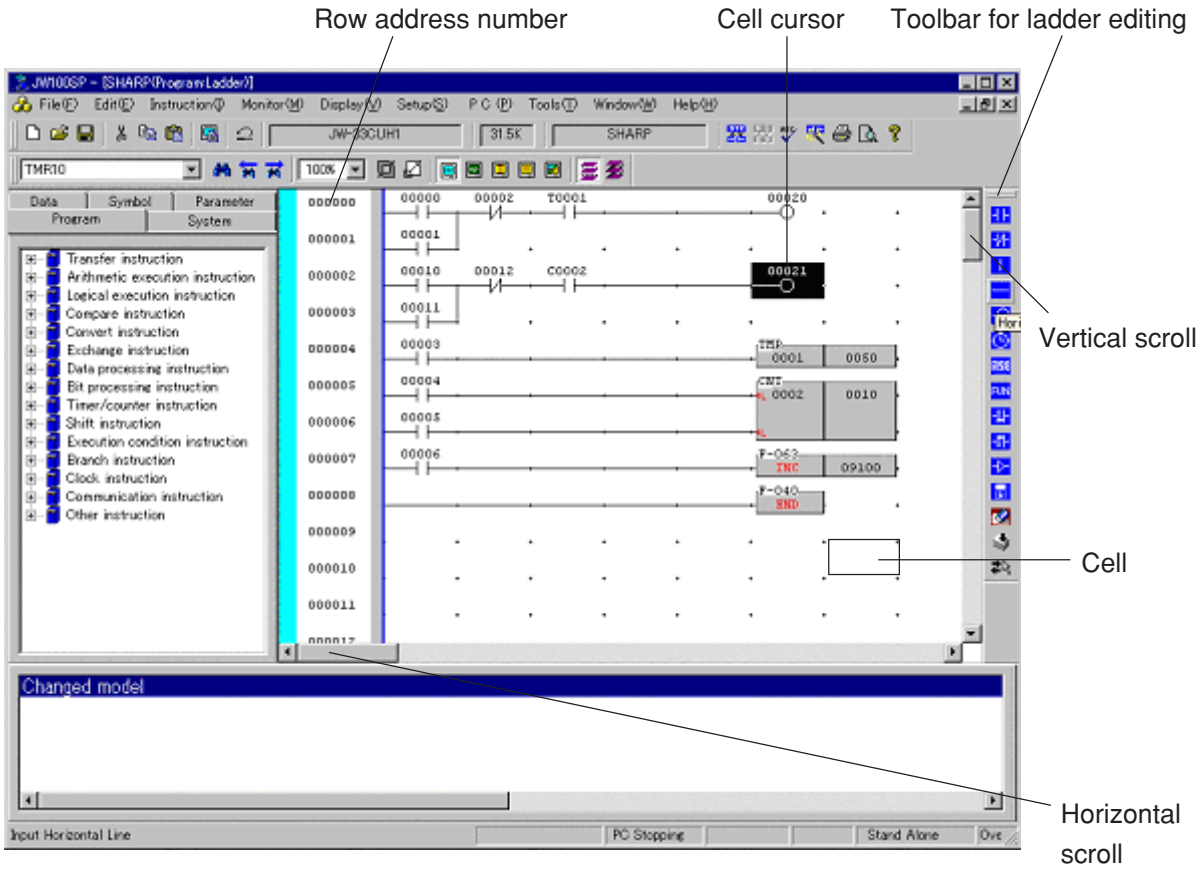
There are two ways of creating a program: ladder and mnemonic.
Also, there are two ways to input a ladder program: direct input and dialog input.



6-1 Ladder Programming

■ [Program：Ladder] window

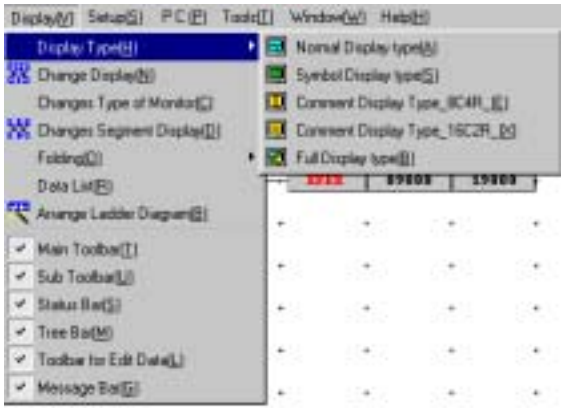
When creating a new program, or when opening a program that is saved in a file, the [Program : Ladder] window will be displayed.



- The ladder display area is organized by the cell as the basic module.
- The group of cells that are lined perpendicularly is called the "column." The ladder display area is organized from the 63rd columns, and use the horizontal scroll to display the column outside the screen.
- The group of cells that are lined horizontally is called the "row." At the time of creating a new program, there are 100 rows, the number of rows will increase by "Insert Row," [↓] key, or ▼ of the vertical scroll bar. Use the vertical scroll to display the line outside the screen.
- Editing operation of the adder input or the modification requires the cell, column, and row as the module.

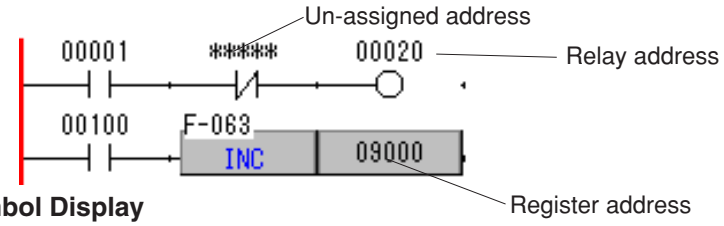
■ Select Address Display Type

Choose the display type of the ladder program from: Normal (Address) Display, Symbol Display, Comment Display (8c. 4r), Comment Display (16c, 2r) or Full Display (Address/Symbol/Comment).



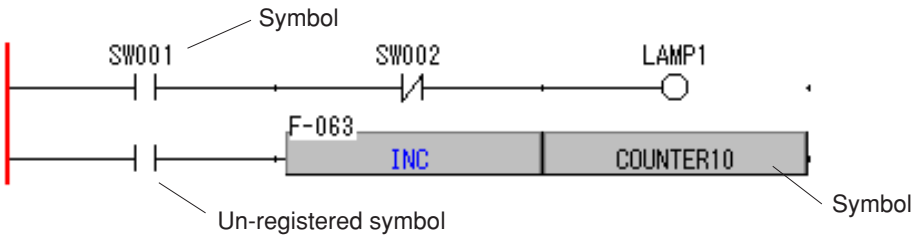
◎ Normal (Address) Display

- Display the address (relay address or register address).
- In case the address was not assigned when creating a program by the symbol, "*****" will be displayed at the address part.



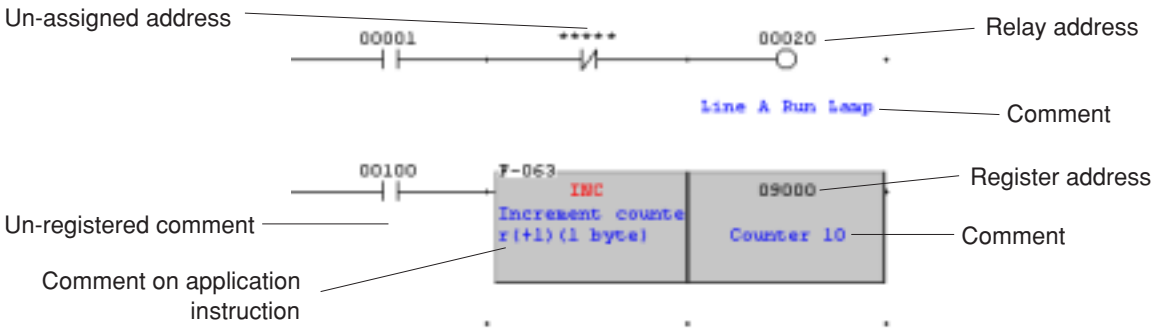
◎ Symbol Display

- Display the symbol (16 characters).
- In case the symbol was not registered when creating a program at the address, the symbol will not be displayed.



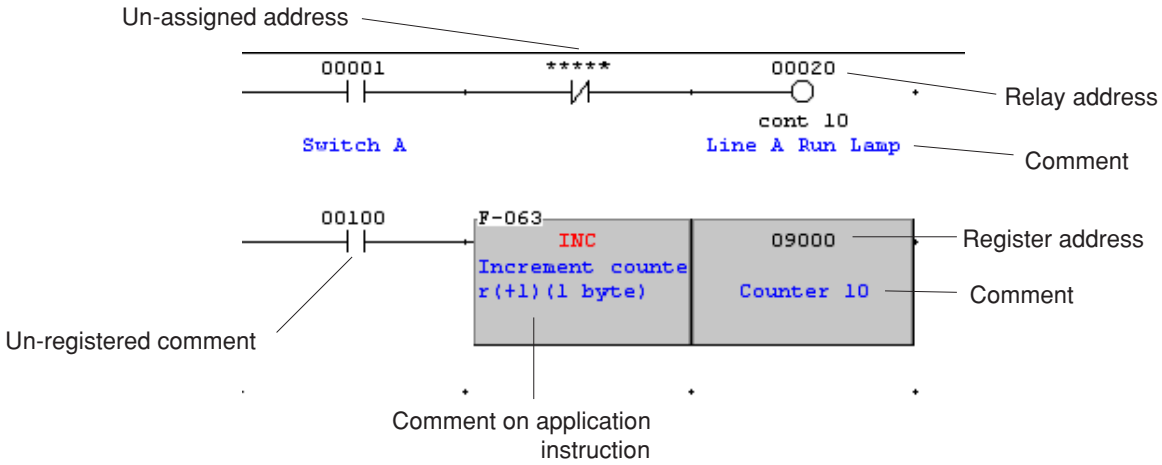
◎ Comment Display (8 characters, 4 lines)

- Display the address (relay address or register address) and the comment (28 characters) within four lines, each of which line can contain 8 characters.
- Comments are not shown if you do not register any comments.
- You cannot input, modify or delete the comments of application instruction, which is specific to JW-100SP.



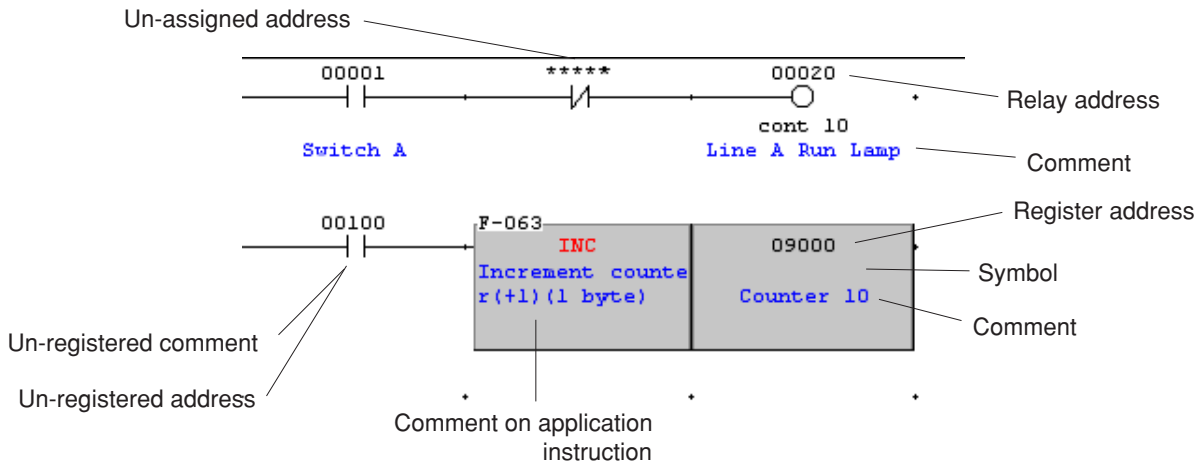
◎ Comment Display (16 characters, 2 lines)

- Display the address (relay address or register address) and the comment (28 characters) within two lines, each of which can contain 16 characters.
- Comments are not shown if you do not register any comments.
- You cannot input, modify or delete the comments of application instruction, which is specific to JW-100SP.



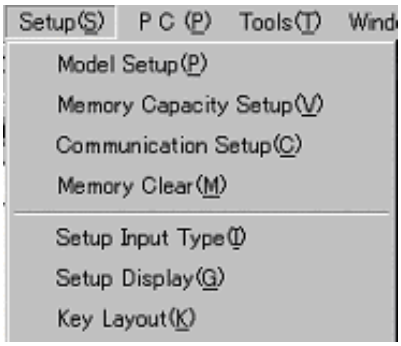
◎ Full Display (Address/Symbol/Comment)

- Display the address (relay address or register address, etc), the symbol (16 characters) and the comment (28 characters).
- If you have not assigned the address when creating the program with symbols, the address is displayed as "******".
- Symbols are not shown if you do not register any symbols.
- Comments are not shown if you do not register any comments.
- You cannot input, modify or delete the comments of application instruction, which is specific to JW-100SP.



■ Program Input Method

There are two types of input methods of the ladder program: direct input and dialog input.
To change between the input mode, use [Setup]-[Setup Input Type] of the menu bar. (For details on the setup input type, refer to the page 6-16)



【Input Mode】

Select either dialog input /direct input.

☐ Inputs at Display Directry.

It becomes the direct input mode.

☐ Inputs Using Dialog

It becomes the dialog input mode.

[1] Direct Input Mode

If the direct input mode is selected, it first initialize the value of relay address, register address, timer/counter address, and application instruction number, and then, it writes them directly to the selected cell position.

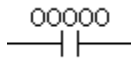
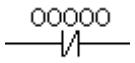
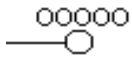
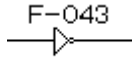
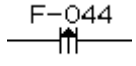
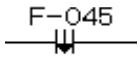
It is an useful mode especially when inputting, for example, the relay address after writing the part of ladder drawing first.

(1) Input instruction

・There are four input methods of instruction.

① Click the button of the toolbar for editing ladder. (basic instruction, application instruction)
② Select the [Instruction] menu command. (basic instruction, application instruction)
③ Push the key assigned in the [Key Assignment] (basic instruction, application instruction)
④ Select the instruction from the tree bar. (application instruction)

Input method of instruction and the initial value of instruction cursor at the time of the input

Toolbar Button	Instruction Menu	Key assigned by default	Instruction Cursor	Initial Value
	A contact	[S]		
	B contact	[D]		
	Horizontal line	[F]		
	Vertical line	[G]		
	OUT	[X]		
	TMR	[V]		
	CNT	[C]		
	FUN	[B]		
	F43	[H]		
	F44	[J]		
	F45	[K]		

(1)-1 The input order by the toolbar button.

1. Select the instruction of the toolbar by the mouse cursor. In case the mouse cursor is the arrow -shaped cursor, it changes to the instruction cursor (described above).
2. Move the instruction cursor to where you input the instruction, and click it to input the instruction. However, the address, application instruction number become the initial value (described above).
   - When the display type is "Symbol Display"/"Full Display (Address/Symbol/Comment)," the symbol will be displayed only if the address of initial value of the symbol has been "symbol registered."
   - When the display type is Comment(8c, 4l)/Comment(16c, 2l)/Full(Address/Symbol/ Comment), the comment will be displayed only if the address of initial value of comment has been "comment registered."
3. Only if the instruction cursor is , , , you can input the instruction continuously by dragging it on the screen.
4. To change the instruction cursor to the arrow-shaped cursor, click the right side of the mouse or use the [ESC] key, or button.

(1)-2 Input order by the [Instruction] menu

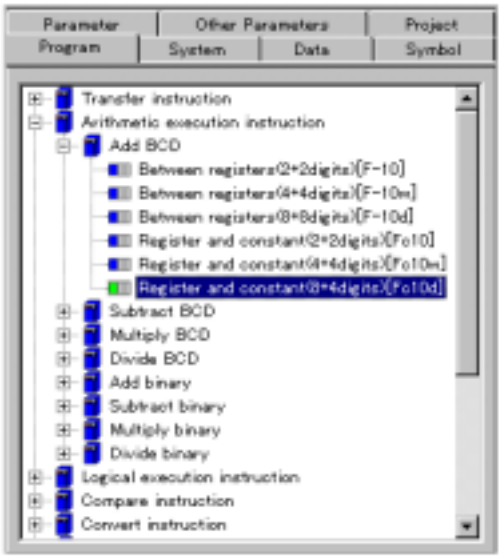
1. When the mouse cursor is the arrow-shaped cursor, move the cell cursor to the position where you input the instruction.
   If the mouse cursor is the instruction cursor, change the instruction cursor to the arrow-shaped cursor by clicking the right side of the mouse or use the [ESC] key, or button.
2. If you click the instruction of the [Instruction] menu, the instruction will be input. However, the address, application instruction number become the initial value (described above).
   The display of the symbols and comments is the same with the item 2 of (1)-1 above.

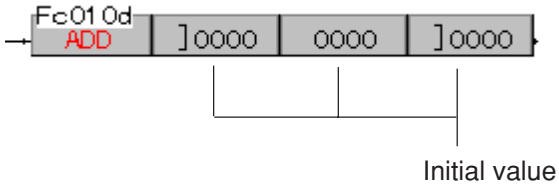
(1) -3 Input order by the Assigned key

1. When the mouse cursor is the arrow-shaped cursor, move the cell cursor to the position where you input the instruction.If the mouse cursor is the instruction cursor, change the instruction cursor to the arrow-shaped cursor by clicking the right side of the mouse or use the [ESC] key, or button.
2. If you press the assigned key, the instruction will be input. However, the address, application instruction number become the initial value (see the previous page). The display of the symbols and comments is the same with the item 2 of (1)-1 above.

(1) -4 Input order of the application instruction by the tree bar

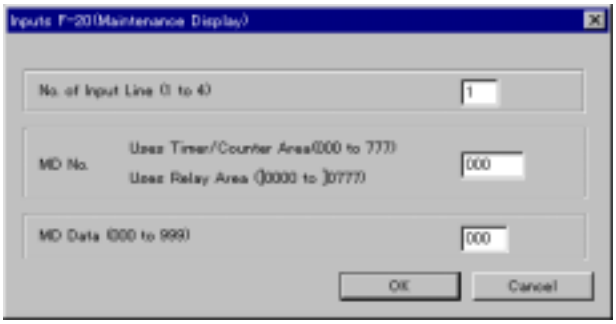
1. At the tree bar, the application instruction is classified according to the function . If you click "＋" of the tree, or double click the instruction, the instruction at the lower layer will be displayed.
2. Click "＋" until the inputting instruction will be displayed at the tree bar.
3. If you click the inputting instruction, and move the cursor to the ladder display area, the instruction cursor (FUN) will be displayed.
4. Move the instruction cursor to the position of the inputting instruction. Click to input the instruction. However, the address and the constant number become the initial value (relay: 00000, register:]0000, constant:0). The display of the symbols and comments is the same with the item 2 of (1)-1 above.





(1)-5 Input order of the F-20 (MD) instruction

1. When the mouse cursor is the arrow-shaped cursor, move the cell cursor to the position where you input the instruction.If the mouse cursor is the instruction cursor, change the instruction cursor to the arrow-shaped cursor by clicking the right side of the mouse or use the [ESC] key, or button.
2. If you click F-20 (MD) instruction of the [Instruction] menu or press the function key ([Shift]+[F8]), [Input F-20 (Maintenance Display)] dialog box will be displayed.
3. Here, you setup the number of input lines, MD number and MD data, and click [OK] button to input the instruction.



(2) Input Address

・When inputting the instruction by the direct input mode, the relay address, register address, application instruction number, etc. will be setup at the initial value so that you need to modify them with the correct value.

・To change from the instruction input mode to the address input mode, select the instruction cell by the arrow-shaped cursor, and use "double click" or the [Enter] key. "Double click" by the mouse is only valid when the "Becomes address input" at the setup of [Double Click] of the [Setup Input Type] dialog box is selected.

(Instruction input mode)

(Address input mode)

● **In case of inputting the address**

・When the display type is Normal(address)/Comment(8c, 4l)/Comment(16c, 2l)/ Full(Address/Symbol/Comment). (Refer to page 6-2)
In case the display type is Comment(8c, 4l)/Comment(16c, 2l)/Full(Address/Symbol/ Comment), the input dialog box is shown to input the address. You can also input the symbol and the comment in that dialog box.

Comment(8c, 4l)/Comment(16c, 2l)

Full(Address/Symbol/Comment)

・Input the address in the numerical value key. You can omit "0's" of the high digit number.

(Example of address input)

Kind	Example	Input
Relay Address	00001	[1] [Enter]
Timer・Counter Number	0001	[1] [Enter]
Timer・Counter Setup Value	0001	[1] [Enter]
Application Instruction Number	F-000	[F] [0] [Enter] or [0] [Enter]
	Fc012w	[F] [C] [1] [2] [W] [Enter] or [C] [1] [2] [W] [Enter]
Register Address	]0001	[]] [1] [Enter]
	b0001	[B] [1] [Enter]
	09001	[0] [9] [1] [Enter]
	E0001	[E] [1] [Enter]
	@99000	[@] [9] [9] [0] [Enter]
Application Instruction Constant Number	001	[1] [Enter]

・There are no differences between upper and lower cases of [F], [C], [X], [W], [D], [B], [E]. Depends on the kind of application instruction, there is a case when the dialog box is displayed instead of inputting the address directly. (the 3rd word of JW30H F-85, etc.)

・Select the cell in which the register is displayed, and if you input the [F1] key, the register area will change in the following order.
]0000 → b0000 → 09000 → 19000 → ・・・・ → 99000→E0000

● **In case of inputting the symbol**

- When the display type is Symbol/Full(Address/Symbol/Comment). (Refer to the page 6-2)
- Input the symbol within 16 characters.
- There are two methods of creating a program by the symbol input.

① Create a program using the symbol that has already been registered at the [Symbol] window.

② After creating a program by using the un-registered symbol, assign the address at the [Assign Symbol] window .

[2] Dialog Input Mode

If an instruction is selected, the dialog input mode display the dialog box where the relay address and the register address are input.

In this mode, you can change between address /symbol input, change between application instruction indirect /direct register, and the setup of the register area setup at the dialog box, according to the each instruction.

(1) Input Instruction

・There are four types of instruction input methods.

① Click the button of the toolbar for editing ladder. (basic instruction, application instruction)
② Select the [Instruction] menu command. (basic instruction, application instruction)
③ Push the key assigned in the [Key Assignment] (basic instruction, application instruction)
④ Select the instruction from the tree bar. (application instruction)

(1) -1 Input order of the basic instruction (A contact, B contact, OUT)

1. Move the cell cursor to the position where you input the instruction.
2. Select the instruction (A contact, B contact, OUT) from the toolbar for editing ladder, [Instruction] menu, and the assigned key.
3. Select the input type (relay address /symbol input) by the mouse when the dialog box is displayed.

[A contact] dialog box

[B contact] dialog box

[OUT] dialog box

4. Input address or symbol

● **In case of inputting the address**

・ Input the relay address by the numerical value key. You can omit“0’s”of the high digit number.

・When inputting TMR /CNT contact, press button. In case of TMR contact, click [T0000], and in case of CNT contact, click [C0000], and finally input the address.

● **In case of inputting the symbol**

・Input the symbol within 16 characters.

・There are two methods of creating a program by the symbol input.

① Create a program using the symbol that has already been registered at the [Symbol] window.

② After creating a program by using the un-registered symbol, assign the address at the [Assign Symbol] window .

5. If you click [OK] button, the instruction will be input.

(1)- 2 Input order of basic instruction (horizontal line, vertical line)

1. Move the cell cursor to the position where you input the instruction (horizontal line, vertical line).
2. If you select instruction (horizontal line vertical line) from the toolbar for editing ladder, the [Instruction] menu and the assigned key, horizontal line /vertical line will be input.

(1) - 3 Input order of basic instruction (TMR, CNT)

1. Move the cell cursor to the position where you input the instruction.
2. Select the instruction (TMR, CNT) from the toolbar for editing ladder, the [Instruction] menu and the assigned key.
3. When the dialog box is displayed, select by mouse the TMR type, the numerical value type and the input type (TMR No./Symbol) for TMR instruction, and select by mouse the CNT type, the numerical value type and the input type (CNT No./Symbol) for CNT instruction.

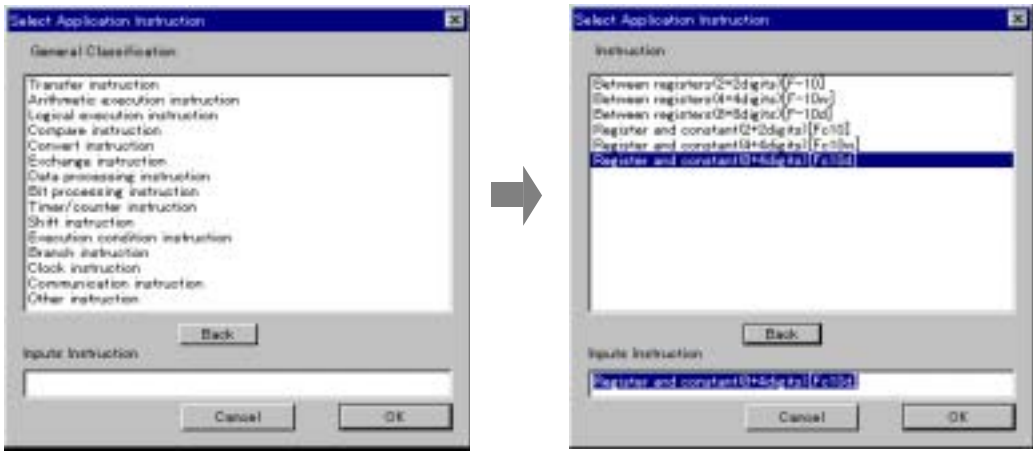
[TMR Instruction] dialog box

[CNT Instruction] dialog box

4. Input the address (TMR No./CNT No.) or symbol.
   - **● In case of inputting the address**
     - ・Input the address by the numerical value key. You can omit "0's" of the high digit number.
   - **● In case of inputting the symbol**
     - ・Input the symbol within 16 characters.
     - ・There are two methods of creating a program by the symbol input.
       - ① Create a program using the symbol that has already been registered at the [Symbol] window.
       - ② After creating a program by using the un-registered symbol, assign the address at the [Assign Symbol] window .
5. Input the setup value by the numerical value key.
6. If you click [OK] button, the instruction will be input.

(1)- 4 Input order of application instruction 1 (In case of selecting the instruction at the dialog)

1. Move the cell cursor to the position where you input the instruction.
2. Select instruction (FUN) from the toolbar for editing ladder, the [Instruction] menu and the assigned key.
3. When the [Select Application Instruction] dialog box is displayed, select the instruction to input in the "General classification", "Detail classification" and "Instruction" by double clicking the mouse in order.
   ([Select Application Instruction] dialog box)



4. If the instruction is displayed at the part of the "Inputs instruction," click [OK] button.
5. The dialog box of each instruction will be displayed, and select the input type (Address / Symbol) by the mouse for the instruction that has the "setup register / relay." Also, if you want to assign the address to the register indirectly, you can check it with the mouse.

6. For the instruction that has the "setup register /relay," input the address or symbol.

● **In case of inputting the address**

- In case of "setup register," press ▼ button, and display the register area, and finally select the area that contains the register to setup.
- Input the address by the numerical value key. You can omit "0's" of the high digit number.

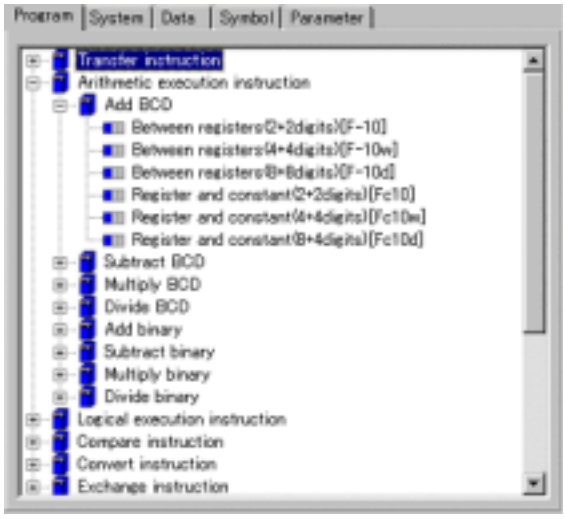
● **In case of inputting the symbol**

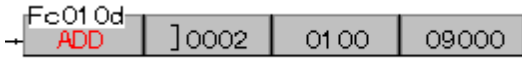
- Input the symbol within 16 characters.
- There are two methods of creating a program by the symbol input.
  ① Create a program using the symbol that has already been registered at the [Symbol] window.
  ② After creating a program by using the un-registered symbol, assign the address at the [Assign Symbol] window.

7. For the instruction that has been setup with the constant, input the constant by the numerical value key.
8. If you click [OK] button, the instruction will be input.

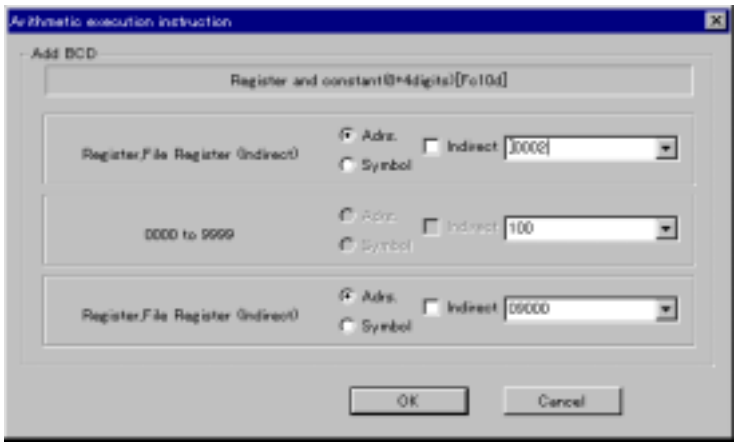
(1)-5 Input order of application instruction 2 (In case of selecting the instruction by the tree bar.)

1. Move the cursor to the position where you input the instruction.
2. At the tree bar, the application instruction is classified according to the function. If you click "+" of the tree, or double click the instruction, the instruction at the lower layer will be displayed.
3. Click "+" until the inputting instruction will be displayed at the tree bar.





4. If you click the inputting instruction, the dialog box of each instruction will be displayed, and select the input type (Address /Symbol) by the mouse for the instruction that has the "setup register /relay." Also, if you want to assign the address to the register indirectly, you can check it with the mouse.



5. For the instruction that has the "setup register /relay," input the address or symbol.

● **In case of inputting the address**

- In case of "setup register," press ▼ button, and display the register area, and finally select the area that contains the register to setup.
- Input the address by the numerical value key. You can omit "0's" of the high digit number.

● **In case of inputting the symbol**

- Input the symbol within 16 characters.
- There are two methods of creating a program by the symbol input.
  ① Create a program using the symbol that has already been registered at the [Symbol] window.
  ② After creating a program by using the un-registered symbol, assign the address at the [Assign Symbol] window.

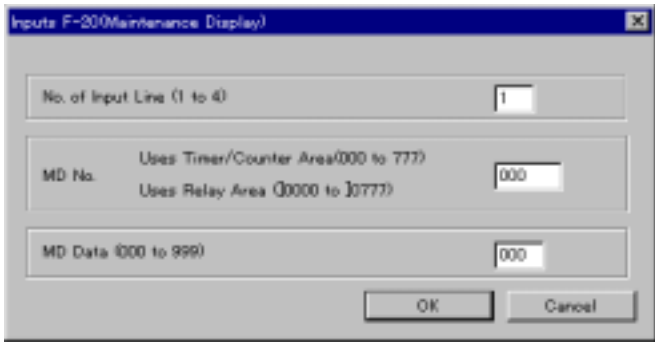
6. For the instruction that has been setup with the constant, input the constant by the numerical value key.
7. If you click [OK] button, the instruction will be input.

(1)-6 Input order of F-43 (bit reverse), F-44 (ON differential), F-45 (OFF differential) instruction

1. Move the cursor to the position where you input the instruction.
2. if you select each instruction from the toolbar for editing ladder, the [Instruction] menu and the assigned key, the instruction will be input.

(1)-7 Input order of F-20 (MD) instruction

1. Move the cell cursor to the position where you input the instruction.
2. If you click F-20 (MD) instruction of the [Instruction] menu or press the function key ([Shift]+ [F8]), [Input F-20 (Maintenance Display)] dialog box will be displayed.



3. Setup the number of input lines, MD number and MD data.
4. Click [OK] button to input the instruction.

(2) Input Address

・When inputting the instruction in the dialog input mode, you normally input the relay address, register address, application instruction number, etc. at the dialog box, but in case you want to modify the once setup address, change the instruction input mode to the address input mode.

(Instruction input mode)

(Address input mode)

・To change from the instruction input mode to the address input mode, select the instruction cell by the arrow-shaped cursor, and use "double click" or the [Enter] key. "Double click" by the mouse is only valid when the "Becomes address input" at the setup of [Double Click] of the [Setup Input Type] dialog box is selected.

● **In case of inputting the address**

・When the display type is Normal(address)/Comment(8c, 4l)/Comment(16c, 2l)/ Full(Address/Symbol/Comment). (Refer to page 6-2)
In case the display type is Comment(8c, 4l)/Comment(16c, 2l)/Full(Address/Symbol/ Comment), the input dialog box is shown to input the address. You can also input the symbol and the comment in that dialog box.

Comment(8c, 4l)/Comment(16c, 2l)

Full(Address/Symbol/Comment)

・Input the address in the numerical value key. You can omit "0's" of the high digit number.
(Example of address input)

Kind	Example	Input
Relay Address	00001	[1] [Enter]
Timer・Counter Number	0001	[1] [Enter]
Timer・Counter Setup Value	0001	[1] [Enter]
Application Instruction Number	F-000	[F] [0] [Enter] or [0] [Enter]
	Fc012w	[F] [C] [1] [2] [W] [Enter] or [C] [1] [2] [W] [Enter]
Register Address	]0001	[]] [1] [Enter]
	b0001	[B] [1] [Enter]
	09001	[0] [9] [1] [Enter]
	E0001	[E] [1] [Enter]
	@99000	[@] [9] [9] [0] [Enter]
Application Instruction Constant Number	001	[1] [Enter]

・There are no differences between upper and lower cases of [F], [C], [X], [W], [D], [B], [E]. Depends on the kind of application instruction, there is a case when the dialog box is displayed instead of inputting the address directly. (the 3rd word of JW30H F-85, etc.)

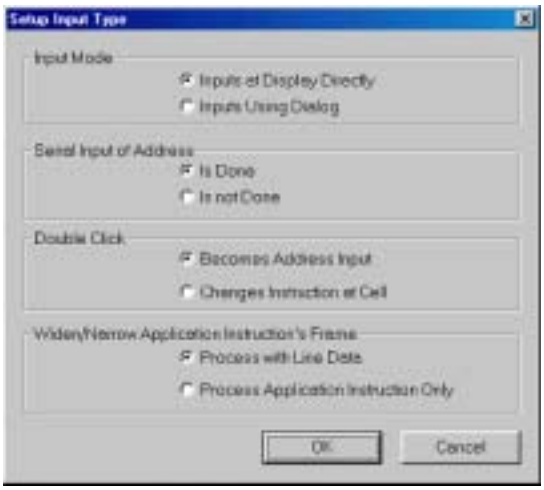
・Select the cell in which the register is displayed, and if you input the [F1] key, the register area will change in the following order.
]0000 → b0000 → 09000 → 19000 → ・・・・ → 99000→E0000

● **In case of inputting the symbol**

- When the display type is Symbol/Full (Address/Symbol/Comment). (Refer to the page 6-2)
- Input the symbol within 16 characters.
- There are two methods of creating a program by the symbol input.
  ① Create a program using the symbol that has already been registered at the [Symbol] window.
  ② After creating a program by using the un-registered symbol, assign the address at the [Assign Symbol] window .

■ Setup Input Type

Click [Setup]-[Setup Input Type] of the menu bar, and display the [Setup Input Type] dialog box.



【Input Mode】

Select either dialog input /direct input

☐ Inputs at Display Directry

It becomes the direct input mode.

☐ Inputs Using Dialog

It becomes the dialog input mode.

【Serial Input of Address】

☐ Do

If you input the address during the address input mode and press the [Enter] key, you can input the address of the cell which is found just on the right side. (In case there is no cell on the right side for the address input, move to the valid cell for the address input.)

In this case, you can change the instruction input mode by moving the cursor to the different cell, or by selecting the [ESC] key.

☐ Undo

If you input the address during the address input mode and press the [Enter] key, you can change to the instruction input mode.

【Double Click】

☐ Becomes Address Input

If you double click the mouse on the cell which accepts the address input, the instruction input mode changes to the address input mode.

☐ Changes Instruction at Cell

・If you double click the mouse on the cell displaying the basic instruction (A contact, B contact,horizontal line, coil), the display will change to the following in order.

A contact→B contact→horizontal line→coil

The relay number does not change, however.

・ If you double click the mouse on the cell displaying the number of timer, counter instruction, the display will change to the following in order. (The change differs according to the PC model.)

TMR→DTMR (BCD)→DTMR (BIN) →UTMR (BCD) →UTMR (BIN)

CNT→DCNT (BCD)→DCNT (BIN) →UCNT (BCD) →UCNT (BIN)

The timer number and the counter number do not change, however.

・If you double click the mouse on the cell displaying the application instruction number, the display will change to the following in order. (The change differs according to the PC model.)

F-XXX→F-XXXw→F-XXXd→FcXXX→FxXXX→FcXXXw→FxXXXw

The application instruction number does not change, however.

・In the direct input mode, if you double click the mouse on the cell which is not displaying anything , the display will change to the following in order.

A contact→B contact→horizontal line→coil

・In the dialog input mode, you can not double click the mouse on the cell which is not displaying anything.

・If you double the mouse on the vertical line input position, a vertical line will be input.

【Widen /Narrow Application Instruction's Frame】

Setup the button movement of the toolbar for editing ladder by the application instruction (F-60,F-61,F-62, etc.) waiting for the several inputs or by CNT instruction.

You can not narrow the instruction frame in the dialog input mode.

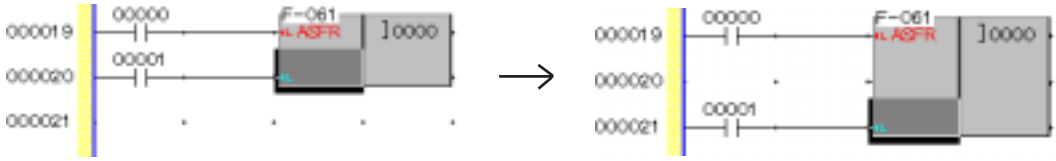
☐ Process with Row Data

a) In case of direct input mode

If you click the button, the mouse cursor changes to the enlarge/contract cursor. If you drag the enlarge/contract cursor to the instruction frame area of the line where you want to widen, the instruction will be widened /narrowed in vertical direction. At the same time, the line of input contact will move.

b) In case of dialog input mode

If you click the button when there is the cell cursor in the instruction frame of the line where you want to widen, the instruction will be widened in vertical direction. At the same time, the line of input contact will move.



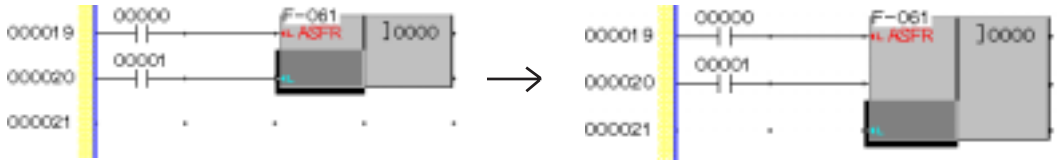
☐ Process Application Instruction Only

a) In case of direct input mode

If you click the button, the mouse cursor changes to the enlarge/contract cursor. If you drag the enlarge/contract cursor to the instruction frame area of the line where you want to widen, the instruction will be widened /narrowed in vertical direction. The line of input contact will not move.

b) In case of dialog input mode

If you click the A button when there is the cell cursor in the instruction frame of the line where you want to enlarge, the instruction will be enlarged in vertical direction. The line of input contact will not move.



■ Edit Circuit

[1] Over Write /Insert Mode

It's the mode when the another element was written over on the cell where the instruction (element) such as A or B contact exist already. The movement is the same on the cell where the element is not written.

Over write mode : Write over with a new element. (refer to the next paragraph)
Insert mode : Insert the new element. There are two types of inserts: insert left and insert right. (refer to the page 6-20)

● Change method of mode

There are tow types of changing methods of over write/insert mode
① Double click the [Over write]/[Insert] display part of the status bar.
② Press the [Insert] key.

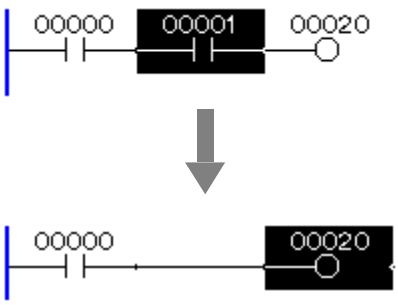
[2] Modify Circuit

The editing method inside the circuit (1 network) is explained.

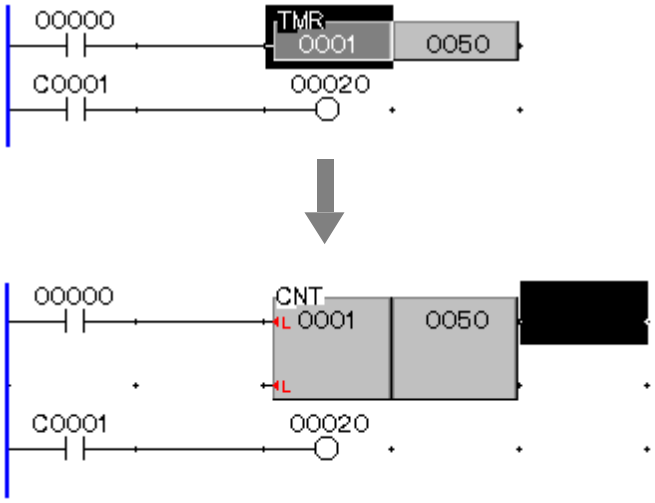
(1) Modify instruction (over write and modify)

・You can change the circuit by writing over another instruction on the cell in which an instruction has been already written.
・Execute over write mode (refer to the previous paragraph)

(Example 1)
Modify the A contact to the horizontal line→ delete A contact

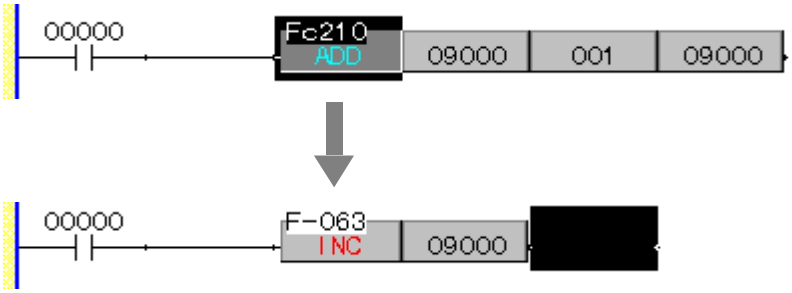


(Example 2)
Modify TMR instruction to the CNT instruction



・Since the CNT instruction uses 2 lines, the line below the CNT instruction will all move down one line.
・After this, write the second input (reset input) of CNT instruction.
・In the direct input mode, CNT number and "setup value" become the initial values, so that you need to modify them after the instruction input.

(Example 3) Modify the Fc210 (ADD) instruction to F-63 (INC) instruction

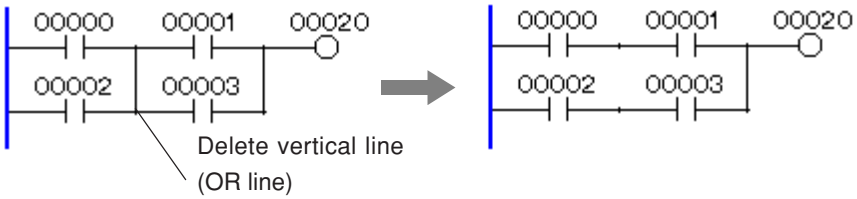


・In the direct input mode, the application instruction number, the register number and the constant become the initial values, so that you need to modify them after the instruction input.

(2) Delete instruction 1(button : eraser, or use the [Delete] key)

・ button (eraser) is used to delete the instruction by the cell module.

・It is useful for deleting the vertical line (OR line), etc.

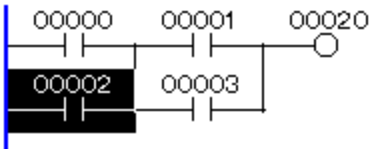


● In case of direct input mode

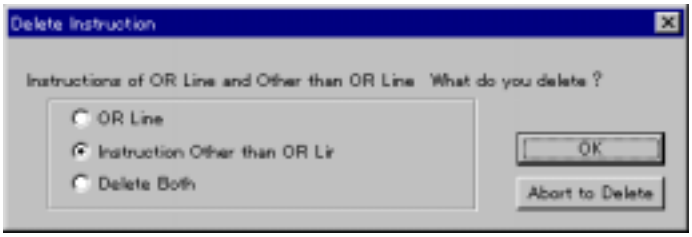
1. If you click button, the cursor changes to the [Eraser] cursor.
2. If you click on the instruction that is to be deleted (the vertical line in the display above), the instruction will be deleted.

● In case of dialog input mode

1. Move the cell cursor to the deleting cell.



2. If you click button, the instruction will be deleted. If the cell which is to be deleted contains the vertical line (OR line) (in case of the example above), the [Delete instruction] dialog box will be displayed.


Delete Instruction
Instructions of OR Line and Other than OR Line What do you delete ?
OR Line
Instruction Other than OR Lir
Delete Both
OK
Abort to Delete

3. In case you are deleting only the vertical line (OR line), select "OR Line," and [OK] button. Then the vertical line (OR line) will be deleted.

・The instruction at the cell cursor position will also be deleted with the [Delete] key.

(3) Delete instruction 2 (use the [Delete Cell] command)

- If you use the [Delete Cell] command, you can delete several cells in the horizontal direction (column direction) in batch.
- The area where you have deleted the cells becomes blank.

● **Operation order**

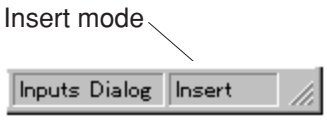
1. Move the cell cursor to the cell that is to be deleted.
2. If you are deleting several cells, simply drag them.

3. If you click [Edit]-[Delete Cell] of the menu bar, the instruction cell will be deleted.

- In case of canceling the deletion, click [Edit]-[Undo] of the menu bar.

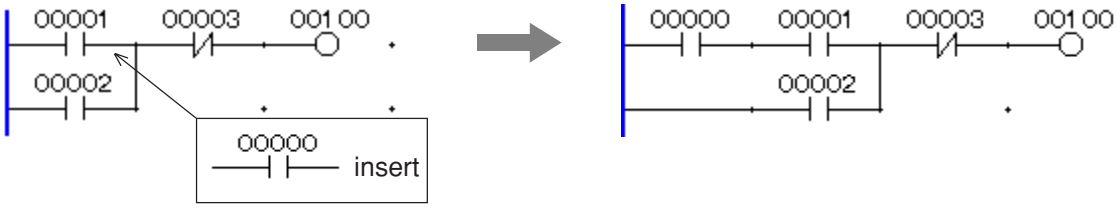
(4) Insert instruction 1 (use insert mode)

- In the insert mode (refer to the page 6-18), you can inset another element on the cell where the instruction (element) such as A or B contact exist already.
- There are two types of inserts: insert left and insert right.



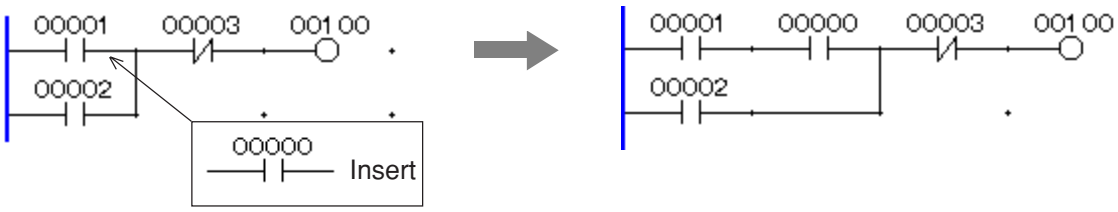
◎ **Insert Left**

In the direct input mode, if you click the instruction cursor (A contact, B contact, horizontal line, F-43, F-44, F-45) on the inserting cell , the new element will be inserted in this cell.
In the dialog input mode, if you click the instruction cursor (A contact, B contact, horizontal line, F-43, F-44, F-45) on the inserting cell , the new element will be inserted in this cell.



◎ **Insert Right**

In the direct input mode, if you click the instruction cursor (A contact, B contact, horizontal line, F-43, F-44, F-45) by keep pressing the [Shift] key on the inserting cell , the new element will be inserted on the right side of the cell.



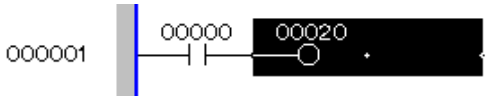
In the dialog input mode, you can not inset on the right.

(5) Insert instruction 2 (use [Insert Cell] command)

- If you use the [Insert Cell] command, you can delete several cells in the horizontal direction (column direction) in batch.
- The cells on the right of the inserted position move right in the number of inserted cell columns.

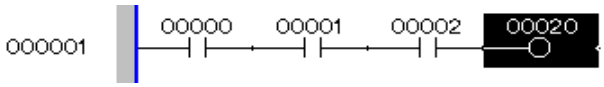
● **Operation order**

1. Move the cell cursor to the cell where you insert the instruction.
2. If you are inserting several cells, simply drag them.



3. If you click [Edit]-[Insert Cell] of the menu bar, an empty cell will be inserted.

4. Write the inserting instruction to the inserted cell position.

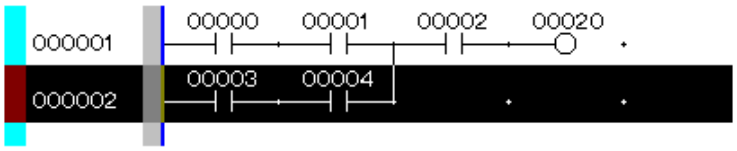


(6) Insert instruction 3 (use the [Insert Row] command)

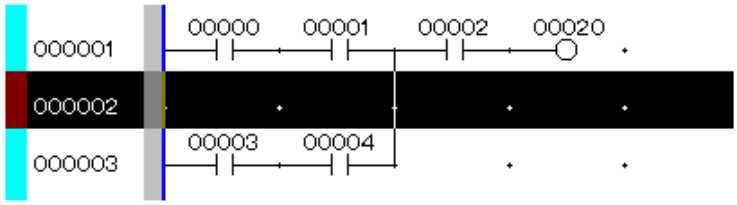
- If you use the [Insert Row] command, you can insert several rows in batch.
- It is useful for inserting the OR instruction.
- All lines below the inserted line will move down the same number of rows inserted.

● **Operation order**

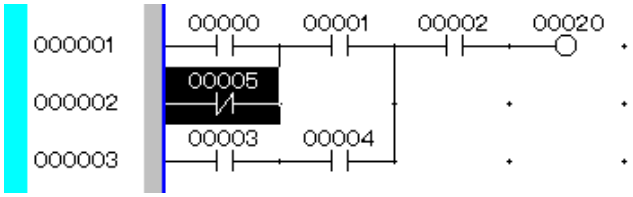
1. Move the cell cursor to the line where you insert the instruction.



2. If you are inserting several cells, simply drag them.
3. If you click [Edit]-[Insert Row] of the menu bar, an empty line will be inserted.



4. Write the inserting instruction to the inserted cell position.

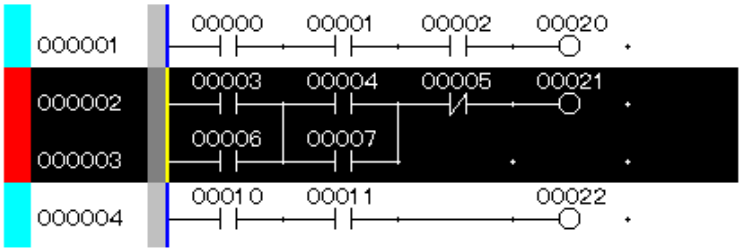


[3] Delete Circuit

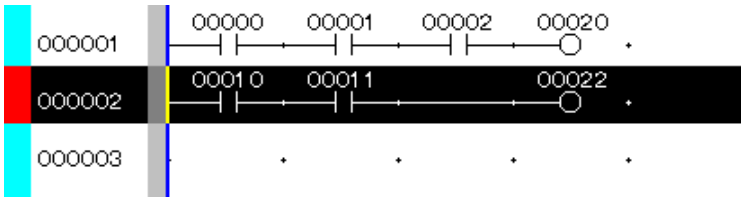
Use the [Delete Row] command when you are deleting by the circuit (network) module.

● **Operation order**

1. Drag the line number of the circuit that is to be deleted.



2. If you click [Edit]-[Delete Row] of the menu bar, the circuit will be deleted.



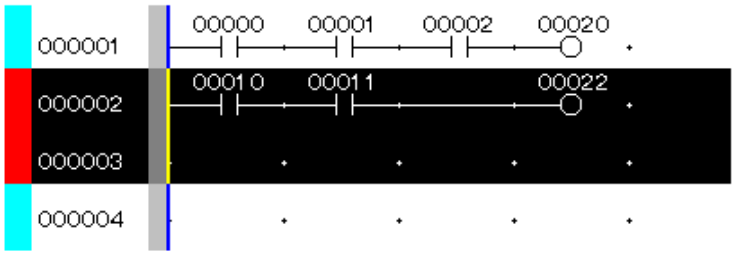
・In case of canceling the deletion, click [Edit]-[Undo] of the menu bar.

[4] Insert Circuit

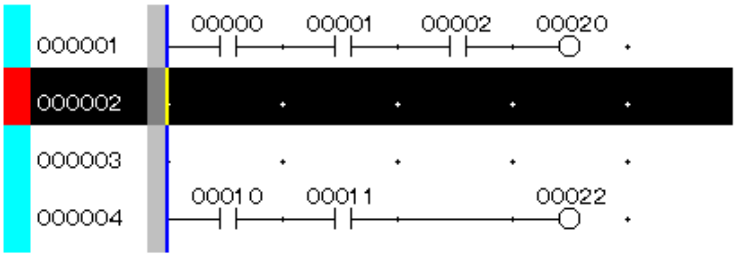
Use [Insert Row] command when inserting the circuit (network).

● **Operation order**

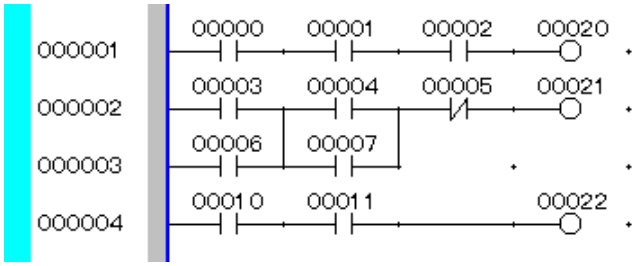
1. Drag only the amount of rows of the inserting circuit from the row number of the insert position.



2. If you click [Edit]-[Insert Row] of the menu bar, empty lines will be inserted.



3. Write the circuit to the inserted row.

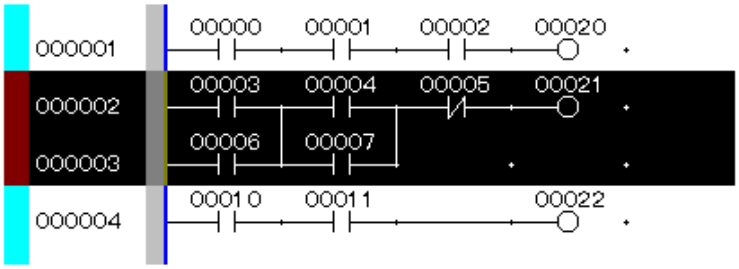


[5] Copy Circuit

Use [Copy], [Paste] command when copying the circuit (network).

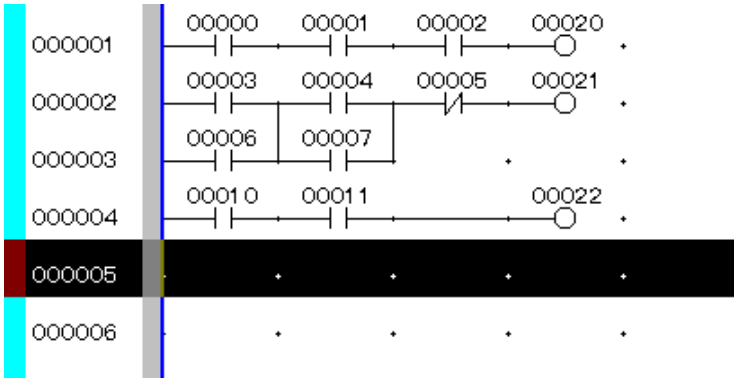
● **Operation order**

1. Drag the line number of the circuit which is to be copied.

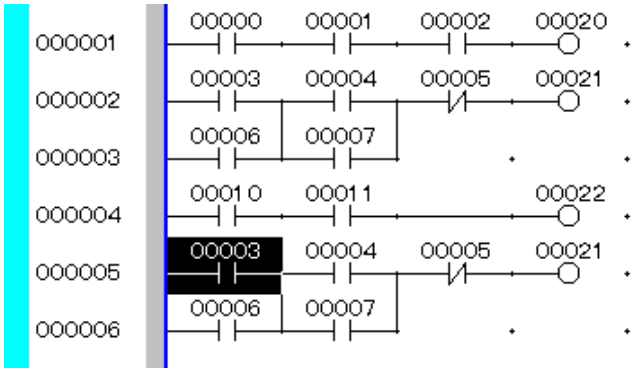


2. If you click [Edit]-[Copy] of the menu bar, the circuit which is to be copied will be momentarily saved.

3. Click the row number of the destination of the copy.



4. If you click [Edit]-[Paste] of the menu bar, the "copy circuit" will be completed.

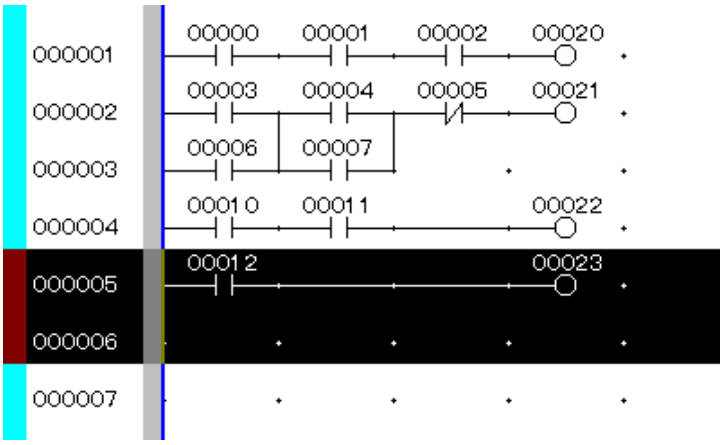


[6] Move Circuit

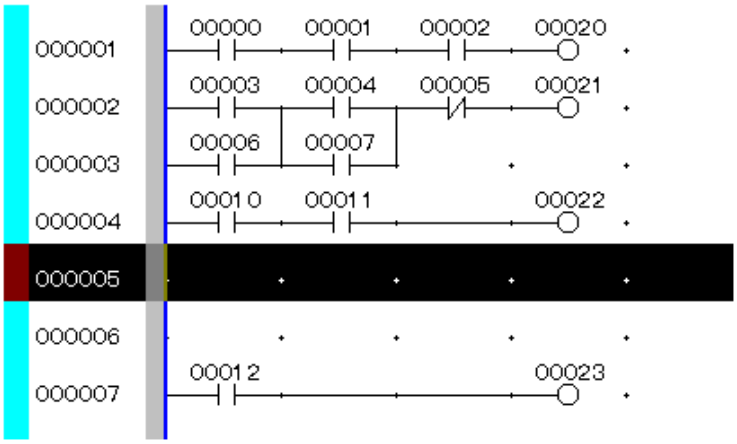
Use [Insert Row], [Cut], [Paste], [Delete Row] commands when moving the circuit (network).

● **Operation order**

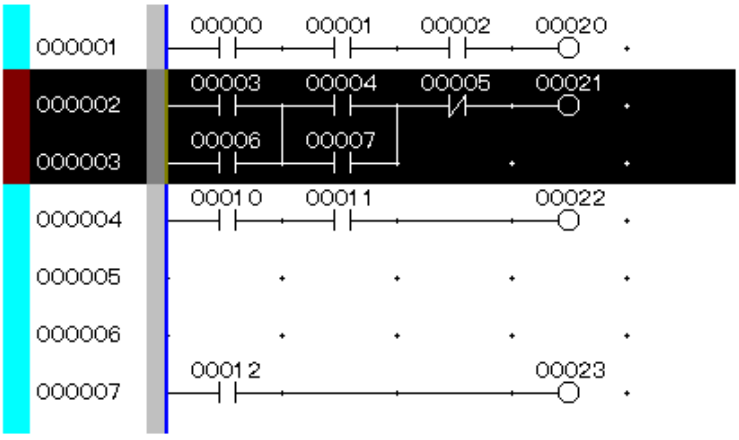
1. Drag only the amount of lines of the moving circuit from the line number of the moving destination.



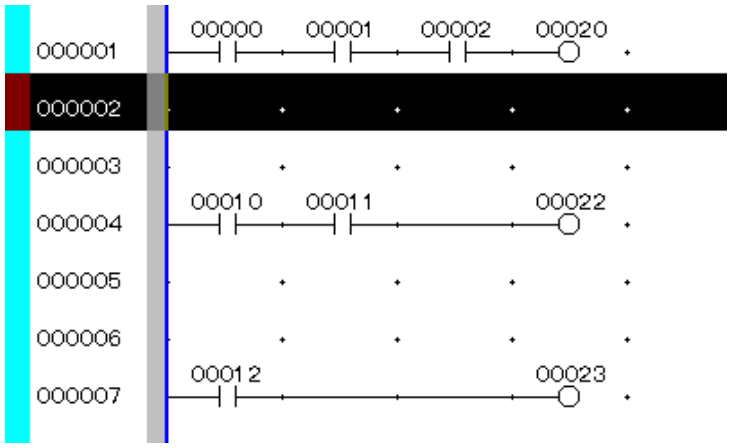
2. If you click [Edit]-[Insert Row] of the menu bar, and empty line will be inserted.



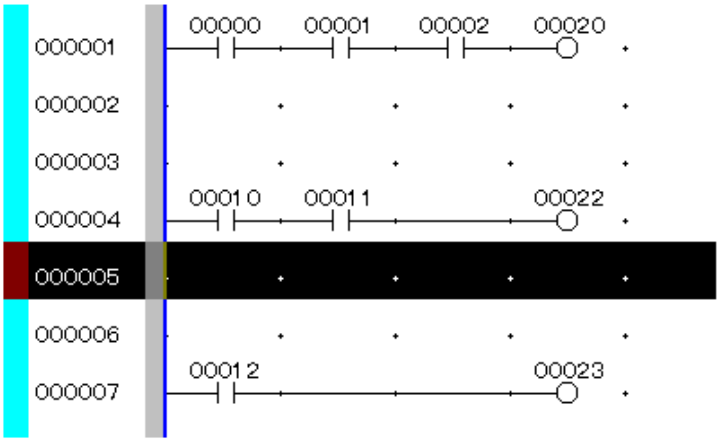
3. Drag the row number of the moving circuit.



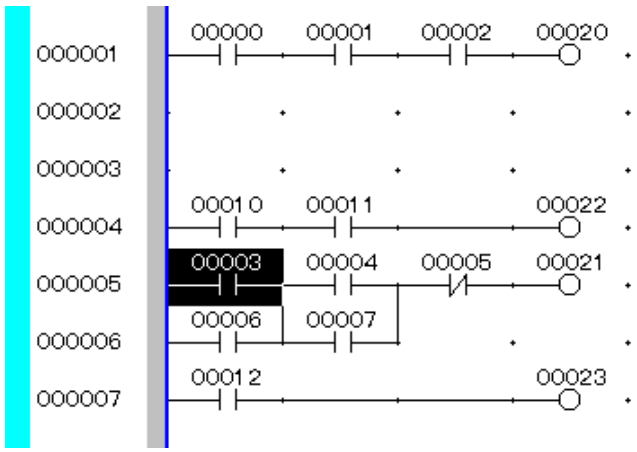
4. If you click [Edit]-[Cut] of the menu bar, the moving circuit will be deleted, and it will be momentarily saved.



5. Click the row number of the moving destination.



6. If you click [Edit]-[Paste] of the menu bar, the circuit which was cut at No.4.will be pasted.



7. After dragging the empty row (the circuit line before the moving : 000002,000003) which has already been moved, if you click [Edit]-[Delete Row] of the menu bar, the empty row will be deleted, and the moving will be completed.
   When changing ladder to mnemonic, however, the empty row will be ignored, so that it will not affect the calculations at the PC even though you don't execute this operation.

■ Library

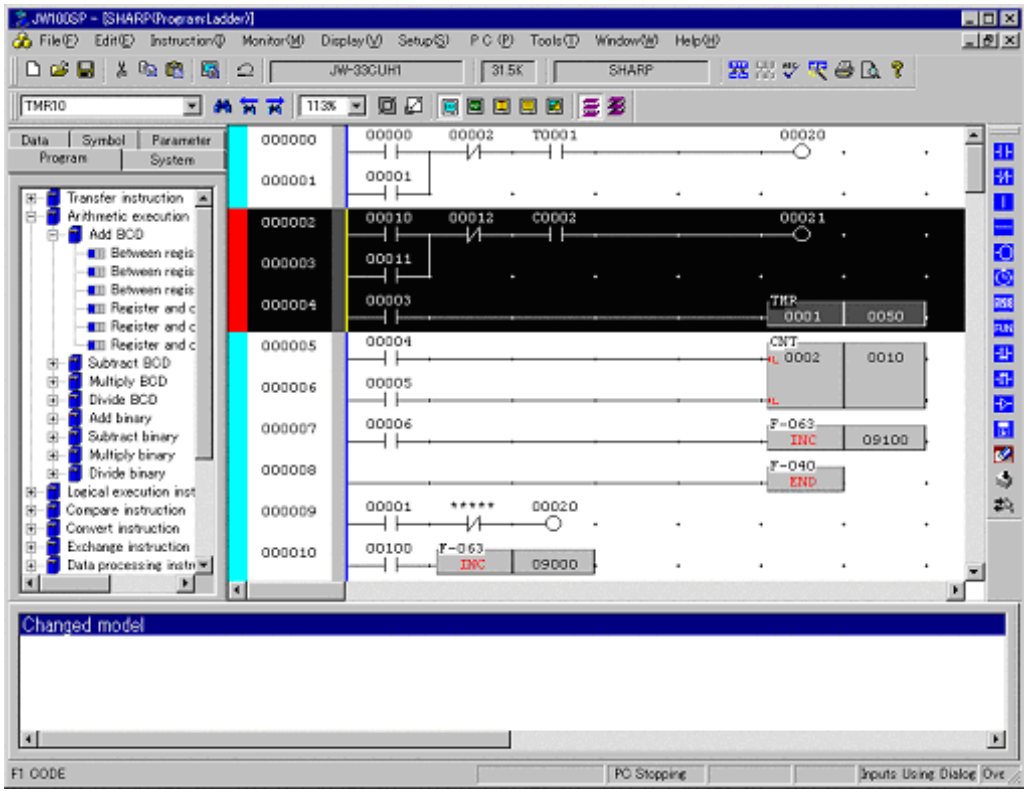
By registering the created programs in the library file, you can create a similar ladder circuit easily.

[1] Register to Library

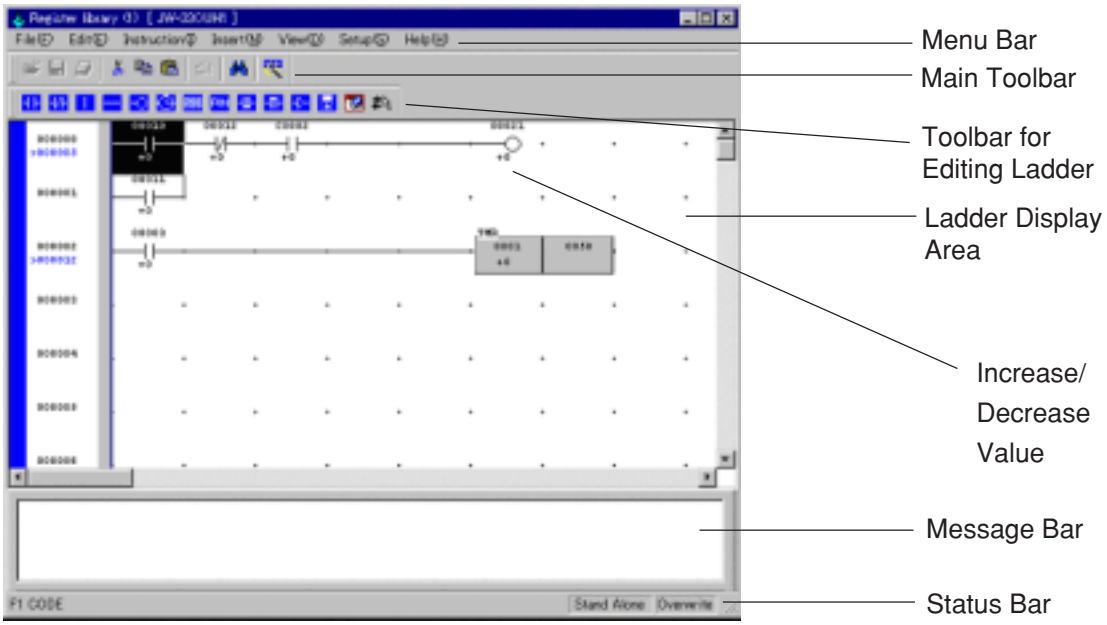
Register the circuit created at the [Program : Ladder] window to the library file.

● Operation order

1. Select by dragging the line number of the circuit which is to be registered.



2. Click [Tool]-[Library]-[Register] of the menu bar.
   ⇒The [Register library] window will be opened, and the circuit selected at No.1. will be displayed.



■ Menu Bar

Menu	Command	Content
File	Read	Used at the [Read from library] window. Read the saved which has already been saved in a file.
	Save As	Save with a new name.
	Save	Used at the [Read from library] window. Save with the current file name.
	Quit	Quit the library register or the reading.
Edit	Undo	Cancel the operation that has just been executed.
	Cut	Cut the selected area and saves it momentarily.
	Copy	Copy the selected area and saves it momentarily.
	Paste	Paste the cut or copied data to the cursor position.
	Insert Cell	Insert the cell to the assigned area.
	Insert Row	Insert the Row to the assigned area.
	Delete Cell	Delete the cell to the assigned area.
	Delete Row	Delete the Row to the assigned are
	Create Line Comment	Insert the comment to the assigned line.
	Find	Find after assigning address (relay, register) ,mnemonic, character line (symbol).
	Jump [To Top Row]	Move the cursor to the front row.
	Jump [To Unedited Row]	Move the cursor to the unedited row (empty row).
	Jump [To Assigned Row]	Move the cursor to the assigned row.
	Jump [To Address Mark]	Move the cursor to the address mark that has been setup.
Instruction	A contact	Used when inputting A contact
	B contact	Used when inputting B contact
	Horizontal Line	Used when inputting horizontal line.
	Vertical Line	Used when inputting vertical line.
	OUT	Used when inputting OUT instruction (coil).
	TMR	Used when inputting TMR instruction.
	CNT	Used when inputting CNT instruction.
	FUN	Used when inputting application instruction.
	F43	Used when inputting F-43 instruction (bit reverse).
	F44	Used when inputting F-44 instruction (ON differential).
	F45	Used when inputting F-43 instruction (OFF differential).
	F-20 (MD)	Used when inputting F-20 instruction (MD).
Insert	Insert	Used at the [Read from library] . Read the library circuit to the [Program : Ladder] window.
	Converts Variation In Batch	Change in batch the "increase /decrease" value used at the repeating, to the optional value.
	All Clear	Erase ladder display area.
View	Arrange Ladder Diagram	Adjust the connection of the disconnected circuit, the display position adjustment of the output instruction and MCS/JCS condition display.
	Main Toolbar	Select "Yes/No" of the main toolbar display.
	Status Bar	Select "Yes/No" of the status bar display.
	Message Bar	Select "Yes/No" of the message bar display.
	Toolbar for Editing Ladder	Select "Yes/No" of the toolbar for editing ladder display.
Setup	Setup Input Type	Setup the input mode (direct input /dialog input) etc..., of the ladder. It's the same setup as the [Program : Ladder] window, so for more details, refer to the pages 6-4 to 17.
	Setup Display Pattern	Adjust the display position of coil, TMR /CNT instruction, application instruction.
	Key Assignment	Assign the keys to input ladder instructions.
	Change Target Model	Define the model to create or edit the program for.
Help	Version Information of Library	Show the version of the library.

■ Main Toolbar

	◎Read	Same as [File]-[Read]
	◎Save	Same as [File]-[Save]
	◎Insert	Same as [Insert]-[Insert]
	◎Cut	Same as [Edit]-[Cut]
	◎Copy	Same as [Edit]-[Copy]
	◎Paste	Same as [Edit]-[Paste]
	◎Undo	Same as [Edit]-[Undo]
	◎Find	Same as [Edit]-[Find]
	◎Arrange ladder diagram	Same as [Display]-[Arrange Ladder Diagram]
	◎Version Information	Same as [Help]-[Version Information of Library]

(Refer to the previous page)

■ Toolbar for Editing Ladder

Same as the function of the toolbar for editing ladder of the [Program : Ladder] window.
Refer to the page 3-8.

■ Message Bar

Display the work completed message or the error message.

■ Status Bar

Display the input mode and the overwrite/insertion mode.

(1) Edit ladder circuit

At the [Register Library] window, you can edit the ladder circuit in the same way as the [Program : Ladder] window, but there are following exceptions.

	[Program : Ladder] window	[Register Library] window	[Read Library] window
Input Symbol/Comment	Possible	Impossible (only address input)	Impossible (only address input)
Display Symbol/Comment	Possible	Impossible (only address display)	Impossible (only address display)
Input Application Instruction by the Tree Bar	Possible	Impossible	Impossible
Find Continuously	Possible	Impossible	Impossible
Find Coil	Possible	Impossible	Impossible
Zoom	Possible	Impossible	Impossible
Program Check	Possible	Impossible	Impossible
Convert Data in Batch	Possible	Impossible	Impossible
Setup Increase/Decrease Value	Impossible	Possible	Possible
Select PC Model	Possible	Impossible (becomes the model of the [Progra : mLadder] window)	Possible (The model started by JW-100SP becomes the one of the [Program : Ladder] window)
Change to Mnemonic/Mnemonic Display	Possible	Impossible	Impossible

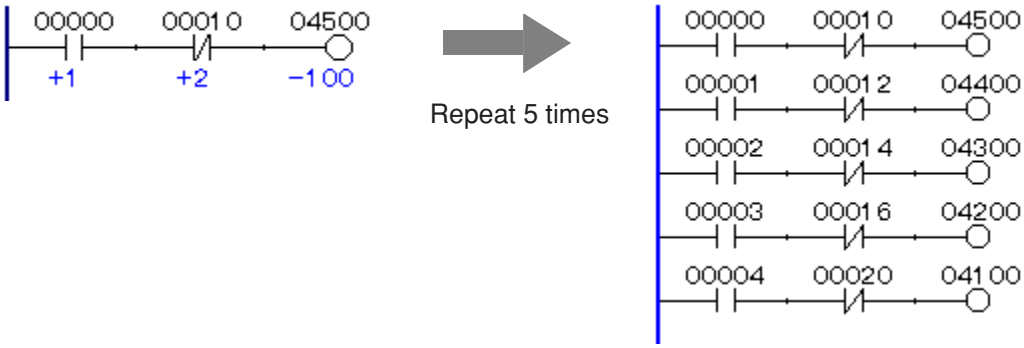
● Clear whole screen

If you click [Insert]-[All Clear] of the menu bar, you can erase the whole ladder circuits of the [Register Library] window.

(2) Setup increase /decrease value

You can read continuously (assigned times) the ladder circuit that was registered in the library, in the [Program : Ladder] window. In this case, you can only read the assigned increase / decrease value by increasing /decreasing the relay address or the register address.

(Example)



● **Modifying method of increase /decrease value**

Depends of the setup of [Double Click] of [Setup]-[Setup Input Type] of the menu bar, the modifying method of increase /decrease value becomes different.

・In case of setting up "Becomes address input."
If you double click the arrow-shaped cursor at the increase /decrease value position, the increase /decrease value input mode will be set.

・In case of setting up "Changes instruction at cell."
If you press [↓] key after pressing the [Enter] key, the increase /decrease value input mode will be set.

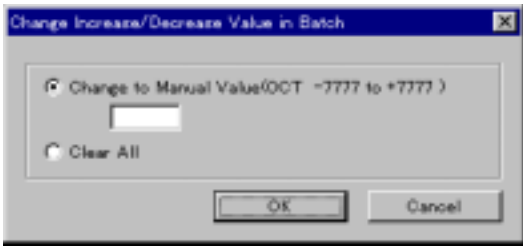
(Instruction input mode) (Increase /decrease value input mode)

The initial value of the increase /decrease value is 0, and the input area is -7777 to +7777 (octal notation). "+" can be omitted.

● **Change increase /decrease value in batch**

You can change the increase /decrease value of the ladder circuit of the active [Register Library] window in batch to the same value .

If you click [Insert]-[Converts Variation in Batch] of the menu bar, [Change Increase /Decrease Value in Batch] dialog box will be displayed.

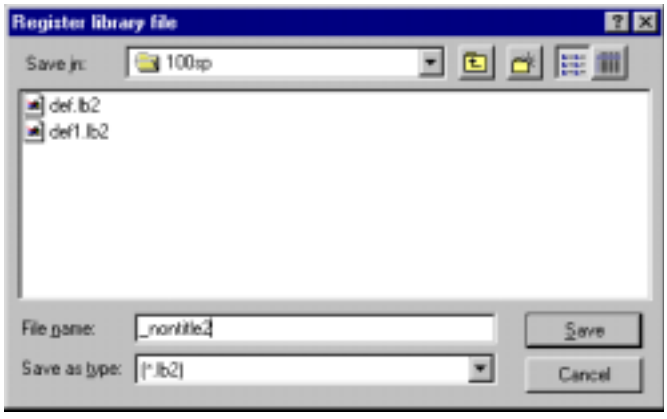


If you click [OK] button after checking the "Change to Manual Value" first, and then, inputting the increase /decrease value, "change in batch" will be executed.

If you click [OK] button after checking "Clear All", all the increase /decrease value will be 0.

(3) Save library file

If you click [File]-[Save As] of the menu bar, the [Register library file] dialog box will be displayed.



If you click [Save] button after setting up the place (directory) to save first, and then inputting the file name, it will be saved in a file. (file of the extension lb2)

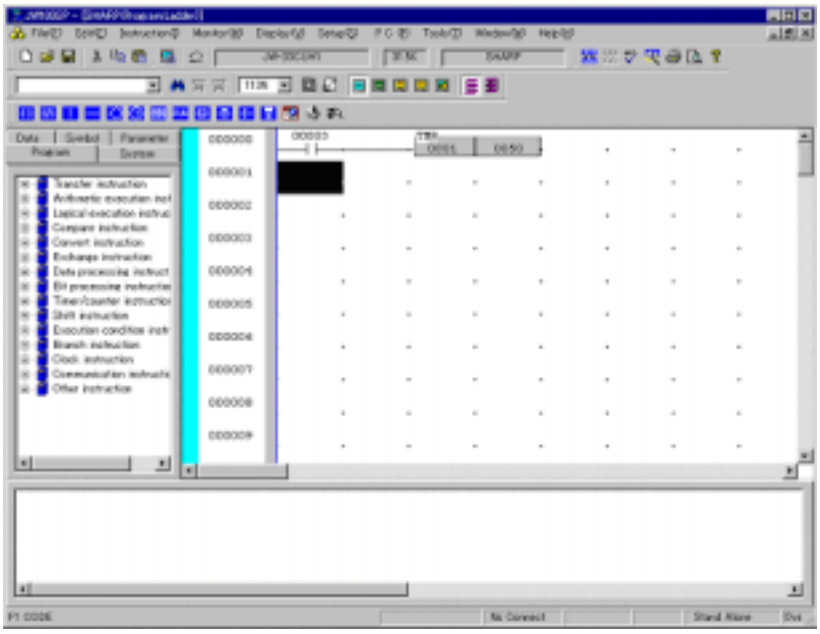
Also, the line comment file is also created at the same time. (file of the extension lbc)

[2] Read from Library

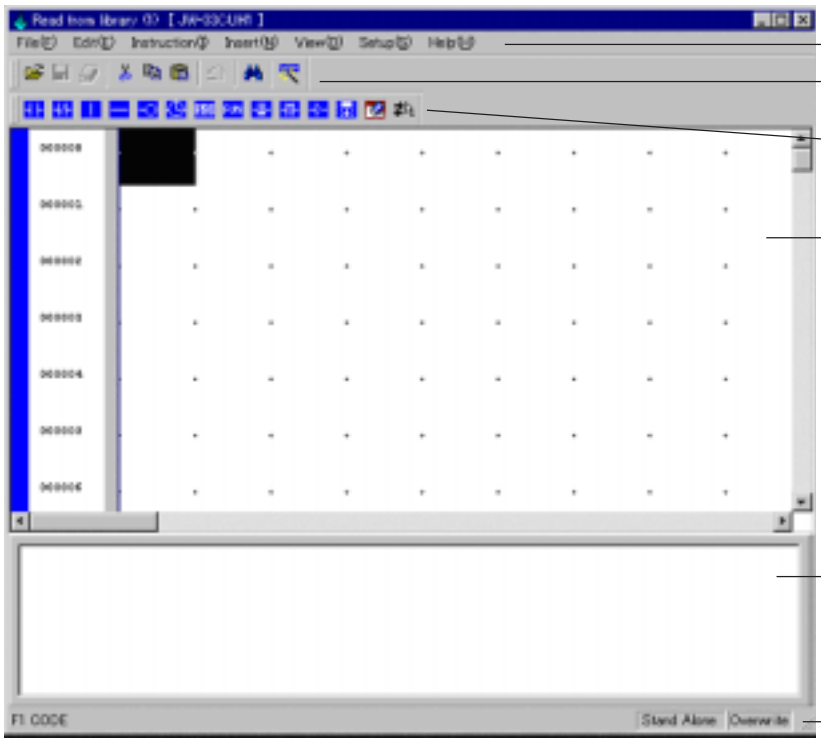
Read out the ladder circuit that was registered at the library to the [Program : Ladder] window.

● **Operation order**

1. Move the cell cursor to the position where you are reading out the circuit that has been registered at the library.

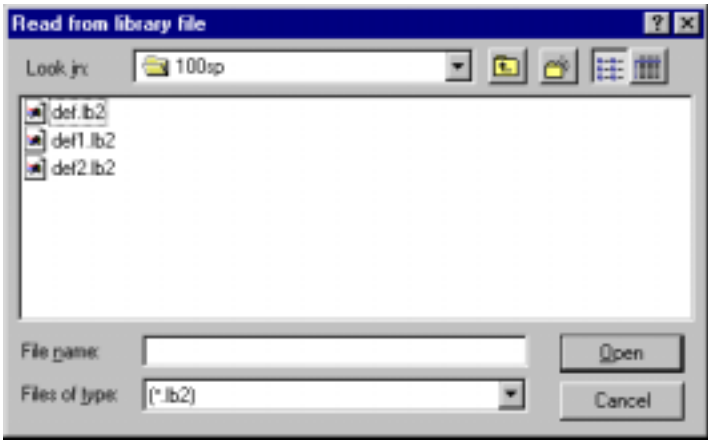


2. Click [Tool]-[Library]-[Read] of the menu bar.
   ⇒ The [Read from Library] window will be opened. At this time, the ladder display area is being cleared.

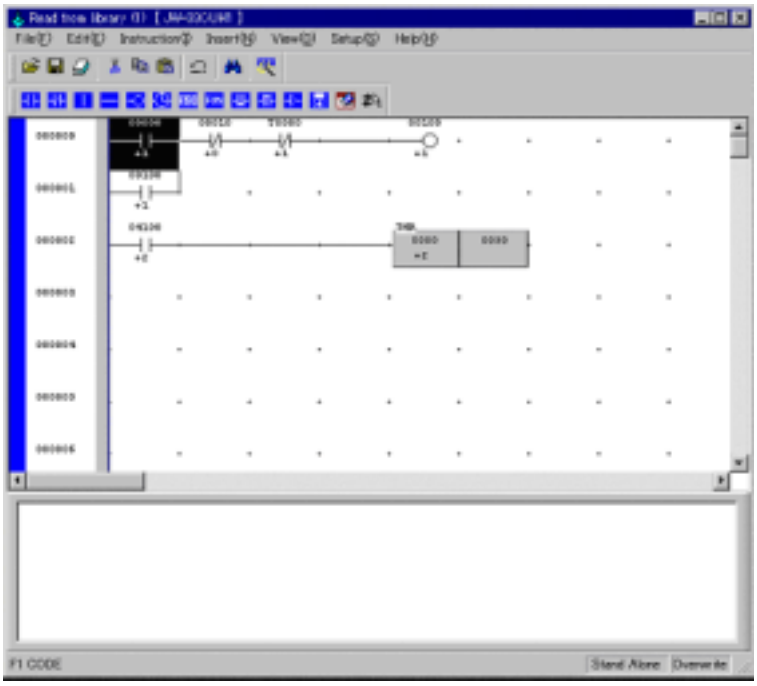


For explanations on the menu bar, main toolbar, toolbar for editing ladder, message bar, status bar, refer to the pages 6-27 to 28.

3. Click [File]-[Read] of the menu bar when reading out the library file that has already been saved.
   ⇒ [Read from library file] dialog box will be displayed.



4. Select the reading file name, and click [Open] button. Only file that you can read is the file with the extension lb2.
   ⇒ The ladder circuit that has been saved in the library file will be displayed.



Notes

・The library file that you can read is the file of a model that carries the same current library window.

5. Like the [Program : Ladder] window, to modify the ladder circuit, use the button of the toolbar for editing ladder, the command of the [Instruction] menu, and the function key.

(1) Edit ladder circuit

The editing method of the ladder circuit at the [Read from Library] window is same as the [Register library] window. Refer to the page 6-29.

(2) Setup increase /decrease value

The setup method of the increase /decrease value at the [Read from Library] window is same as the [Register library] window. Refer to the pages 6-29 to 30.

(3) Save library file

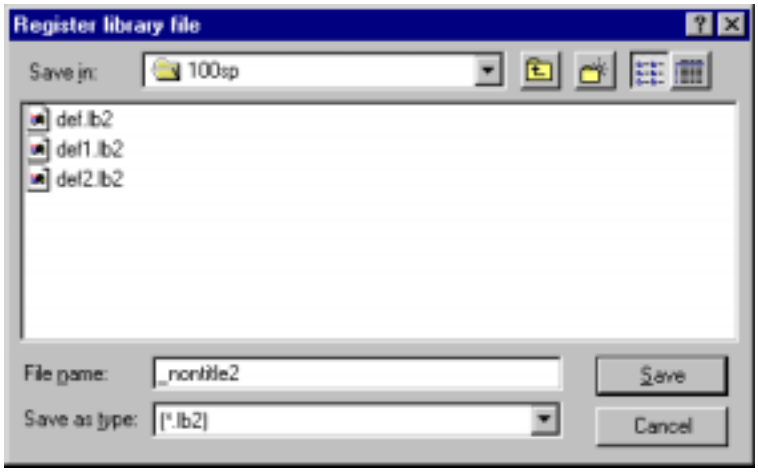
●Save

To save the file with the same name as the library file that was read, click [File]-[Save] of the menu bar.

●Save As

To save the file with the different name to the library file that was read, click [File]-[Save As] of the menu bar.

⇒ [Register library file] dialog box will be displayed.



If you click [Save] button after setting up the place (directory) to save first, and then inputting the file name, it will be saved in a file. (file of the extension lb2)

Also, the line comment file is also created at the same time. (file of the extension lbc)

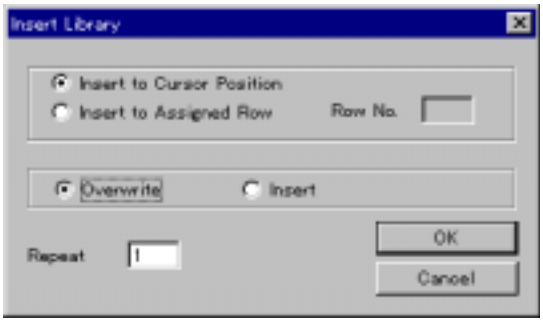
(4) Read to the [Program: Ladder] window

Read the ladder circuit created at the [Read from Library] to the [Program: Ladder] window.

● Operation order

1. Click [Insert]-[Insert] of the menu bar.

⇒ [Insert Library] dialog box will be displayed.



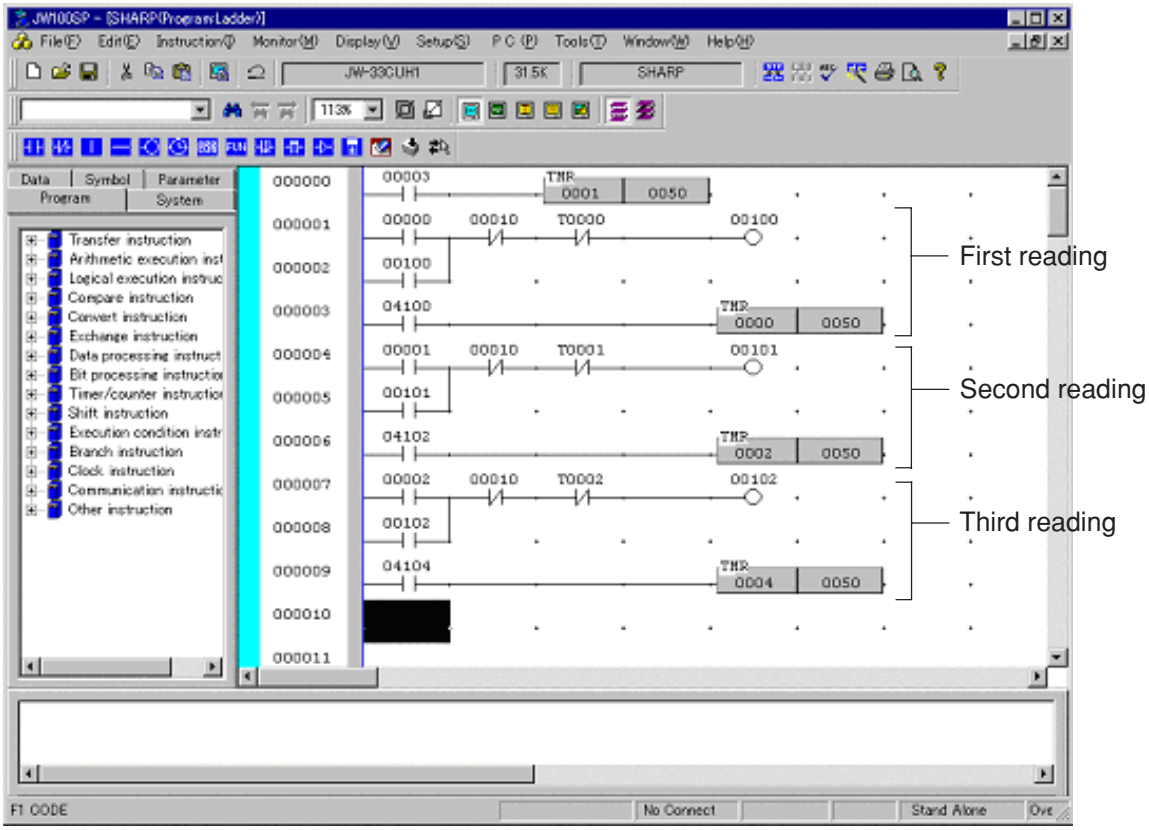
2. Assign the reading position.
   - ☐ Insert to Cursor Position.
     Read out to the row that contains the cell cursor of the [Program : Ladder] window.
   - ☐ Insert to Assigned Row.
     Read out to the assigned row of the [Program : Ladder] window.

3. When there is a ladder circuit on the assigned line of the [Program : Ladder] window, select either "over write" on the ladder circuit, or "insert" in front of the ladder circuit.

4. Setup the number of times of the ladder circuit being read continuously on the "repeat time." In case you setup more than two times, read out by increasing /decreasing the relay address or the register address , according to the number of increased/ decreased value. If the number of repeat is one time, the increase /decrease value will not be affected.

5. If you click [OK] button, the reading of the ladder circuit to the [Program : Ladder] window will start.

Example of the number of repeat being three times.

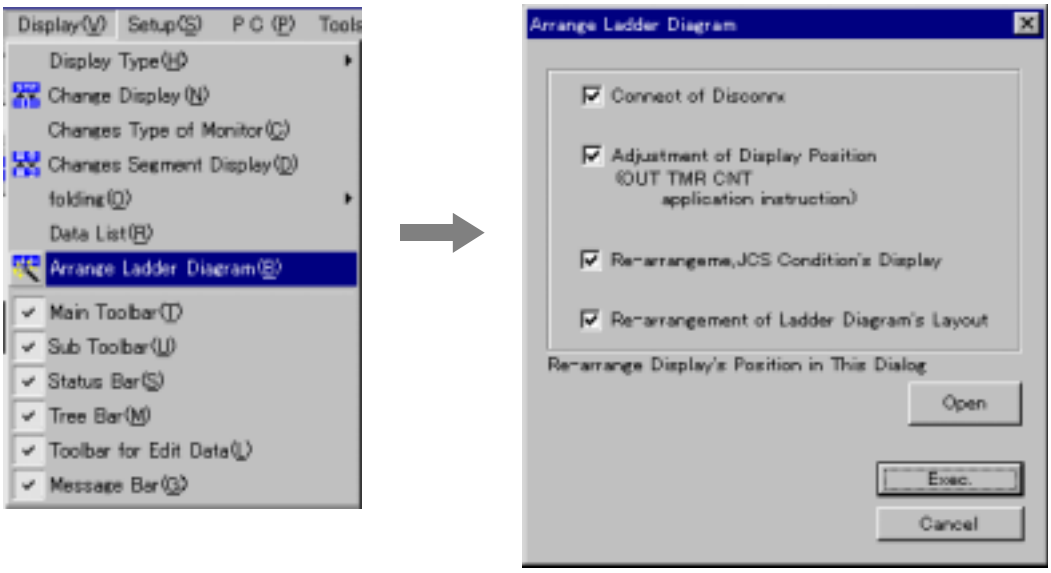


■ Arrange Ladder Diagram

You can adjust the display position of the output instruction (OUT instruction, /application instruction, etc...) which was created at the [Program: Ladder] window, or you can execute the automatic connection of the disconnected circuit or optimization of the ladder.

● Operation order

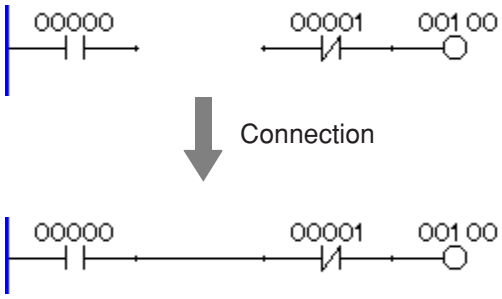
1. Display the ladder circuit at the [Program: Ladder] window.
2. Click [Display]-[Arrange Ladder Diagram] of the menu bar.
   ⇒ [Arrange Ladder Diagram] dialog box will be displayed.



3. If you click the [Exec.] button after checking the item to execute by the mouse, the ladder will be arranged.

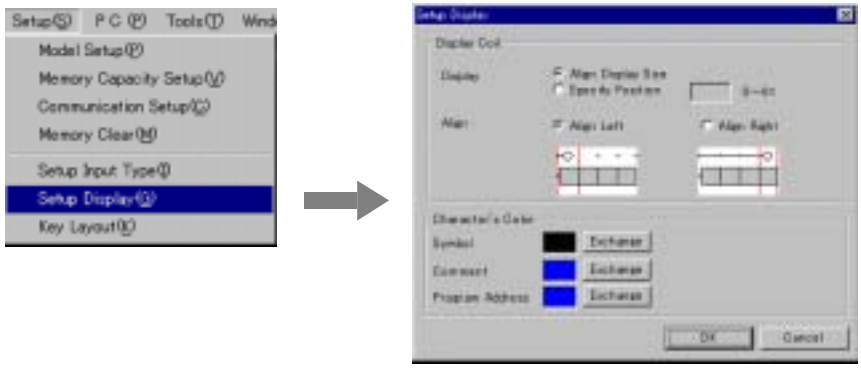
(1) Connection of the disconnected circuit

Connect the disconnected circuit. Only the horizontal line will be connected, however, and the vertical line will not be connected.



(2) Adjustment of the display position

Adjust the display position of OUT instruction, TMR /CNT instruction, and application instruction. You can either setup the display position by the [Open] button in the [Arrange Ladder Diagram] dialog box, or by the [Setup Display] dialog box which can be displayed by clicking [Setup]-[Setup Display] of the menu bar.



【Display Position】

Assign the display position of the coil (OUT instruction)

☐ Align display

The coil display position is set according to the screen size.

When the setup of the next clause【Align position 】is "Align left," the 4 th cell from the right of the screen become the display position of the coil. And when the setup is "Align right," the first cell from the right of the screen will become the display position of the coil.

If the number of contacts of the horizontal direction exceed the screen size, the display position will be set according to the number of the contacts. (The display position of coil will be set outside the screen)

☐ Specify Position

Assign the display position of the coil by the row number (0 to 61).

If the number of contacts of the horizontal direction exceed the assigned number, the display position will be set according to the number of the contacts.

【Align Position】

Assign the display position of TMR /CNT instruction and application instruction.

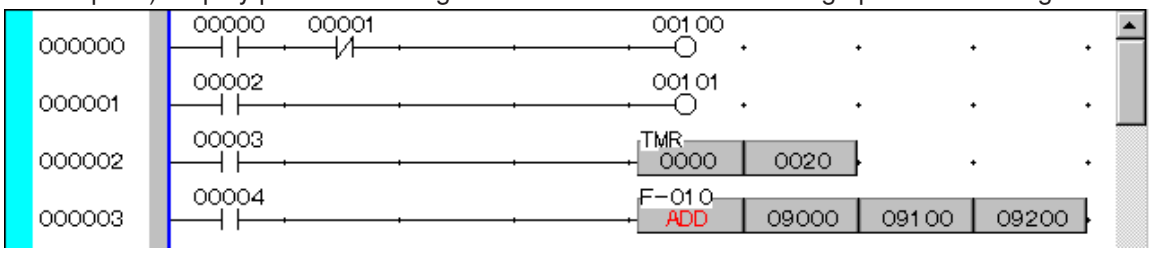
☐ Align left

The display position of TMR /CNT instruction number and application instruction number will be the display position of coil (OUT instruction).

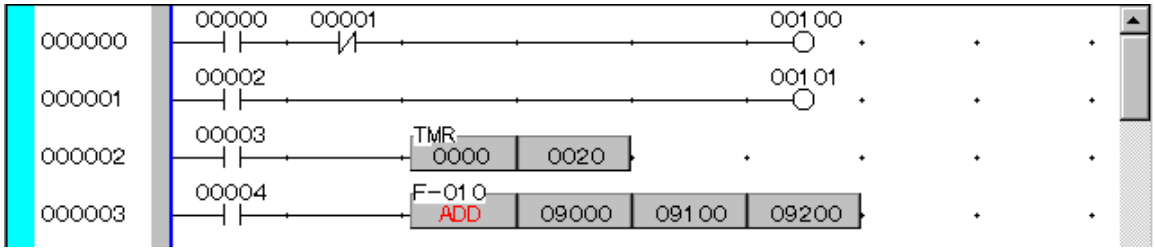
☐ Align right

The display position of TMR /CNT instruction number and application instruction number will be the 4 th number from the left of the display position of coil (OUT instruction).

Example 1) Display position : arrange to the screen size Arrange position : Arrange in front



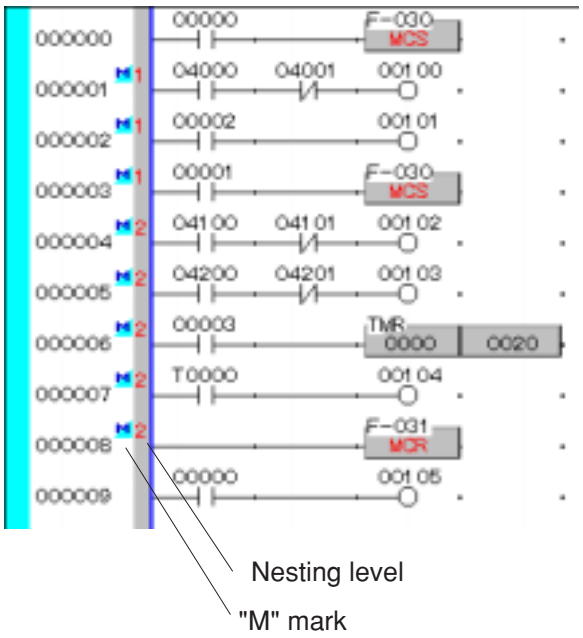
Example 2) Display position : assign position (row number 5) Arrange position : Arrange in back



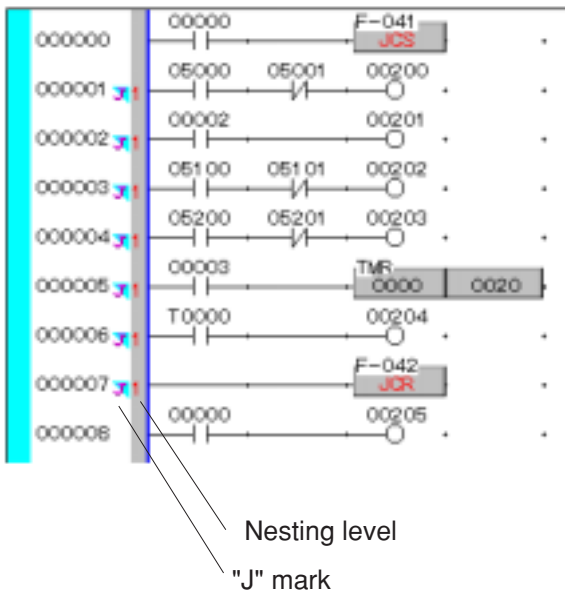
(3) Re-arranglment of MCS, JCS condition's display

Check the area where the condition of MCS (F-30) and JCS (F-41) is valid, and display "M" (MCS), "J" (JCS) to the line number of the valid area.

Example 1) Using MCS

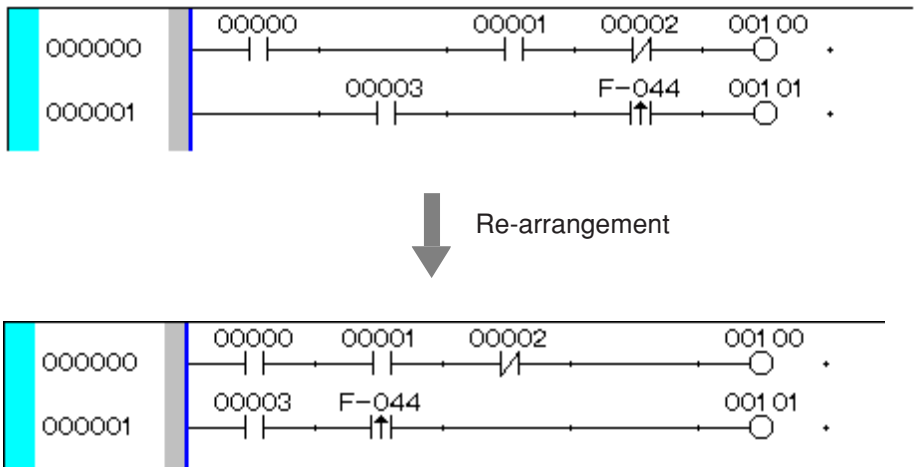


Example 2) Using JCS



(4) Re-arrangement of ladder diagram's layout

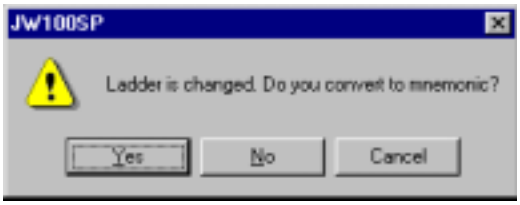
Omit unnecessary horizontal lines, and gather the ladder elements towards left.



■ Converting Ladder to Mnemonic

Change the ladder diagram created at the [Program : Ladder] window to the mnemonic.
Converting Ladder to the Mnemonic is taken place in the following timing.

① When transferring the program to the PC (right before the transfer).
② When saving the program in the file (right before the saving).
③ When clicking the button of the toolbar for editing ladder.
④ When the program check is executed by clicking [Edit]-[Program Check] of the menu bar, or by clicking the button of the main toolbar.
⑤ When clicking the [Display]-[Data List] of the menu bar.
⑥ When changing the window to the [Program: Mnemonic] window by clicking the [Display]-[Change Display] of the menu bar ,or clicking the button of the main toolbar after editing the ladder.When this operation takes place, the following dialog box will be displayed.

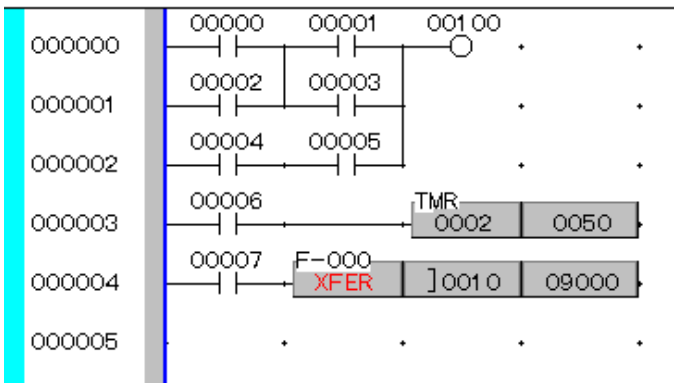


If you click [Yes] button here, the window changes to the [Program : Mnemonic] window, and the mnemonic program will be displayed. If you click [No] button here, the mnemonic program before the creation or the modification of the ladder will be displayed.

⑦ Before word-wrapping.
⑧ Before changing the model.

(Example of the change to mnemonic)

Ladder program → Convert → Mnemonic program

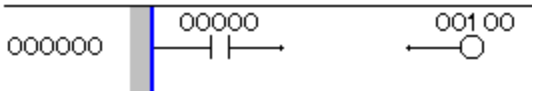


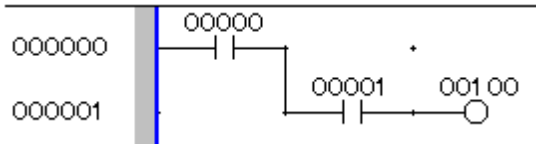
000000	STR	00000
000001	OR	00002
000002	STR	00001
000003	OR	00003
000004	AND STR	
000005	STR	00004
000006	AND	00005
000007	OR STR	
000010	OUT	00100
000011	STR	00006
000012	TMR	0002
000013		0050
000014	STR	00007
000015	F-000	XFER
000016		]0010
000017		09000
000020	NOP	

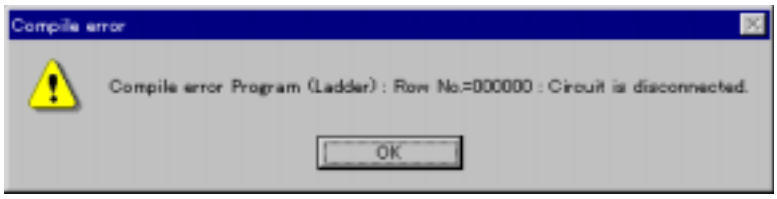
Notes

If there is a ladder circuit (disconnected line, etc.) that can not be changed to the mnemonic when converting ladder to mnemonic, an error message (compile error) will be displayed, and this particular ladder program will not be changed to the mnemonic.
In this case, the transfer to the PC or the printing will not take place, however, the saving in the file will take place.

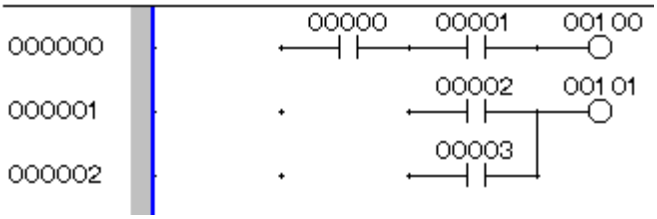
(Example of compile error)







(Attention) The ladder circuit will not become an“error”even though it does not start from the maternal line (0 column).



000000	STR	00000
000001	AND	00001
000002	OUT	001 00
000003	STR	00002
000004	OR	00003
000005	OUT	001 01

■ Optimization of Ladder

You can draw freely the ladder diagram in the ladder diagram display area, but when this freely drawn ladder diagram is modified to be looked better, the ladder is said to be "optimized."

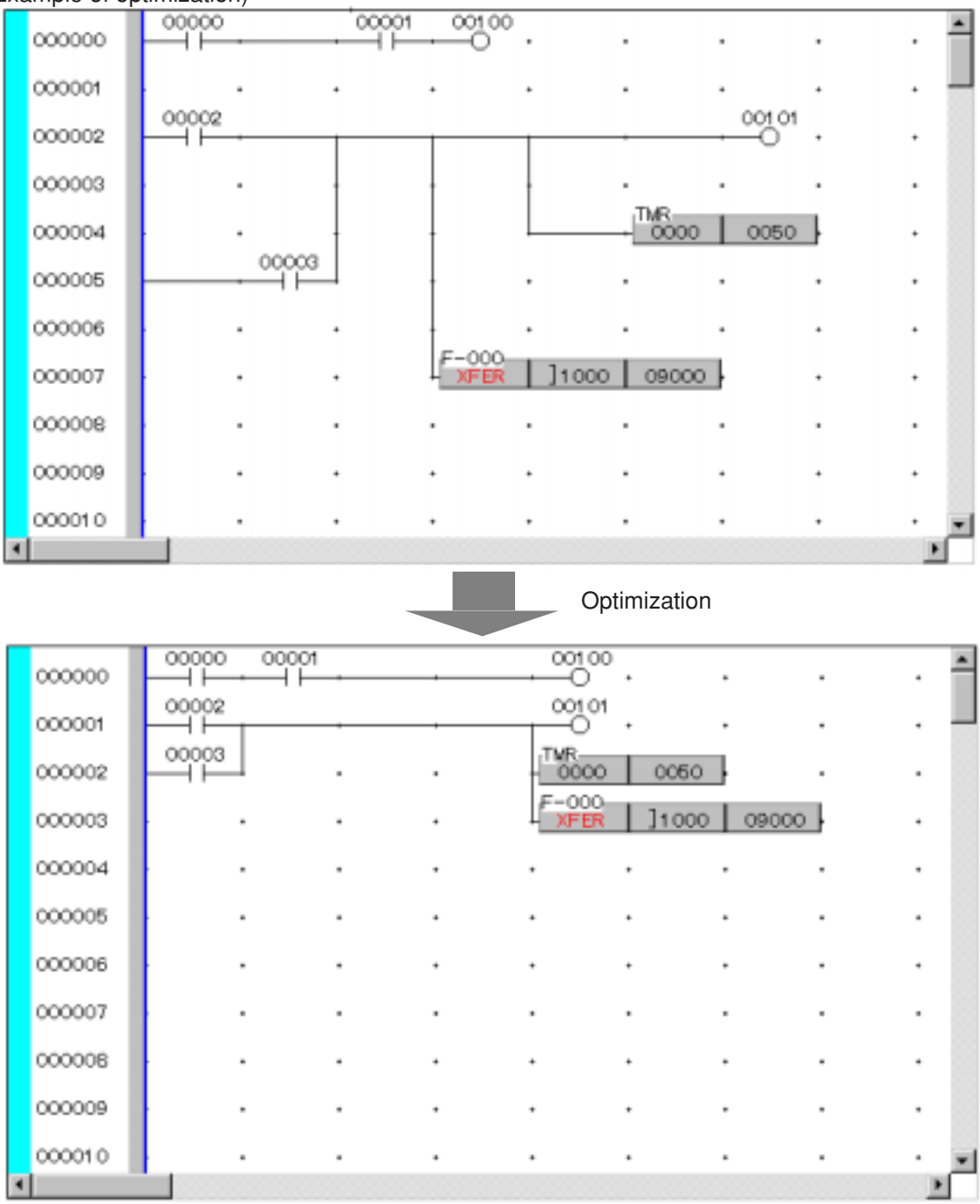
[1] Circuit by the Optimization

If you execute the optimization, the ladder diagram will become the following.

① All contacts will be crammed at upper and at the left side, and unnecessary horizontal lines・vertical lines will be deleted.

② The position of OUT instruction, TMR /CNT instruction and application instruction will all move to the position of the corresponding window size which was adjusted to the optimization. Depends of the size, the horizontal line・vertical line will be either added or deleted. The actual display position is at the fourth number from the right of the screen, but if there are many AND contacts, the display position will be set outside the screen.

(Example of optimization)



[2] Optimization Timing

The ladder optimization is executed at the time of "converting mnemonic to ladder."
Therefore, follow the following order when you are displaying the optimized ladder diagram which had been already been created .

① Create ladder drawing at the [Program : Ladder] window.
② Change the window to the [Program : Mnemonic] window after clicking [Display]-[Change Display] of the menu bar or button of the main toolbar to change the ladder to the mnemonic.
③ Click button of the toolbar for editing mnemonic, and change it to the ladder.
④ Click [Display]-[Change Display] of the menu bar, or click button of the main toolbar, and change the window to the [Program : Ladder] window.

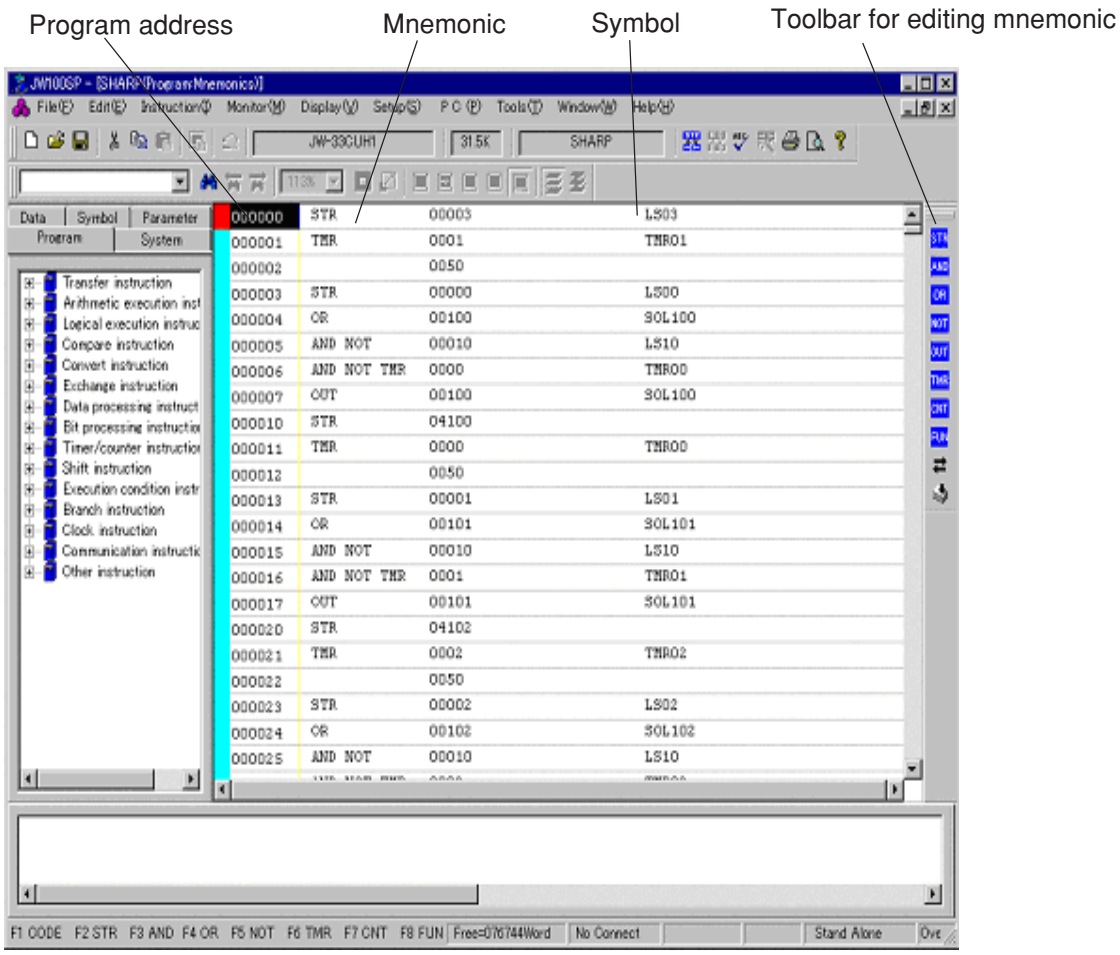
Notes

When changing from mnemonic to ladder, the content (coil display position) that was setup by [Setup]-[Setup Display] of the menu bar are invalid. To validate this setup, execute [Display]-[Arrange Ladder Diagram] of the menu bar at the [Program : Ladder] window.

6-2 Mnemonic programming

■ [Program : Mnemonic] window

If you click [Display]-[Change Display] of the menu bar when the [Program : Ladder] window is being displayed, the [Program : Mnemonic] window will be displayed.



・The symbol which was registered at the [Symbol] window (the same file name as the [Program : Mnemonic] window) will be displayed.

■ Input by Mnemonic

The input by the mnemonic is executed in the following order.

1. Select the program address that you want to input.
   ・Select the program address with [↑][↓] keys, or click by the mouse.

2. Select the instruction that you want to input.
   ・There are three methods to select the instruction.
   ① Select the [Instruction] menu command. (STR, AND, etc...)
   ② Click the toolbar for editing mnemonic.
   ③ Press the function key.
   F2 : STR F3 : AND F4 : OR F5 : NOT
   F6 : TMR F7 : CNT F8 : FUN F9 : OUT
   ・The inputs of compound instructions (STR NOT, AND STR, STR TMR, OR NOT CNT, etc...) will be executed by repeating the order described above.

· If you click the ⇄ button or the [F1] key after inputting TMR /CNT instructions, the display will change to the following order.

TMR → DTMR (BCD) → DTMR (BIN) → UTMR (BCD) → UTMR (BIN)

CNT → DCNT (BCD) → DCNT (BIN) → UCNT (BCD) → UCNT (BIN)

· If you input an instruction, the spot where numerical values such as relay or register number, timer /counter number and application instruction number will be waiting for the input.

3. Input relay or register number, timer · counter number, or application instruction number, and then press the [Enter] key.

(Example of inputting address)

Kind	Example	Input
Relay Address	00001	[1] [Enter]
Timer · Counter Number	0001	[1] [Enter]
Timer · Counter Setup Value	0001	[1] [Enter]
Application Instruction Number	F-000	[F] [0] [Enter] or [0] [Enter]
	Fc012w	[F] [C] [1] [2] [W] [Enter] or [C] [1] [2] [W] [Enter]
Register Address	]0001	[]] [1] [Enter]
	b0001	[B] [1] [Enter]
	09001	[0] [9] [1] [Enter]
	E0001	[E] [1] [Enter]
	@99000	[@] [9] [9] [0] [Enter]
Application Instruction Constant Number	001	[1] [Enter]

· There are no differences between upper and lower cases of [F], [C], [X], [W], [D], [B], [E].

· Select the cell in which the register is displayed, and if you input the [F1] key, the register area will change in the following order.

]0000 → b0000 → 09000 → 19000 → ··· → 99000 → E0000

■ Edit Mnemonic

· All mnemonic editing will be operated in program address module. You can select several program addresses by the dragging operation.

· You can insert the NOP instruction by selecting the [Insert Row] command of the [Edit] menu, or by selecting the [Insert] key.

· You can delete the instruction by selecting the [Delete Row] command of the [Edit] menu, or by selecting the [Delete] key, However, you can not delete from the 2 nd to the fourth words of the 2 to 3-word instructions.

· You can copy or move the instruction by selecting the [Cut], [Copy], [Paste] commands of the [Edit] menu.

■ Converting Mnemonic to Ladder

Convert the mnemonic program that was created at the [Program: Mnemonic] window to the ladder diagram.

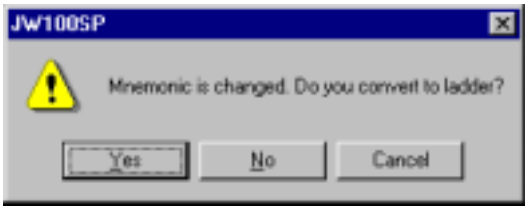
Converting mnemonic to ladder is executed in the following timings.

① At the time of transferring the program from the PC (right after the transfer)

② At the time of reading the program from the file (right after the reading)

③ When clicking the button of the toolbar for editing mnemonic.

④ When changing the window to the [Program: Ladder] window by clicking the [Display]-[Change Display] of the menu bar, or clicking the button of the main toolbar after editing the mnemonic. If you execute this operation, the following dialog box will be displayed.



If you click the [Yes] button here, the window will change to the [Program: Ladder] window, and the ladder diagram will be displayed. If you click the [No] button here, the ladder diagram before the creation or modification of the mnemonic program will be displayed.

In addition, if you display the ladder diagram after having the mnemonic changed to the ladder , the ladder will be optimized and displayed. (Refer to the page 6-40 for "optimization of ladder.")

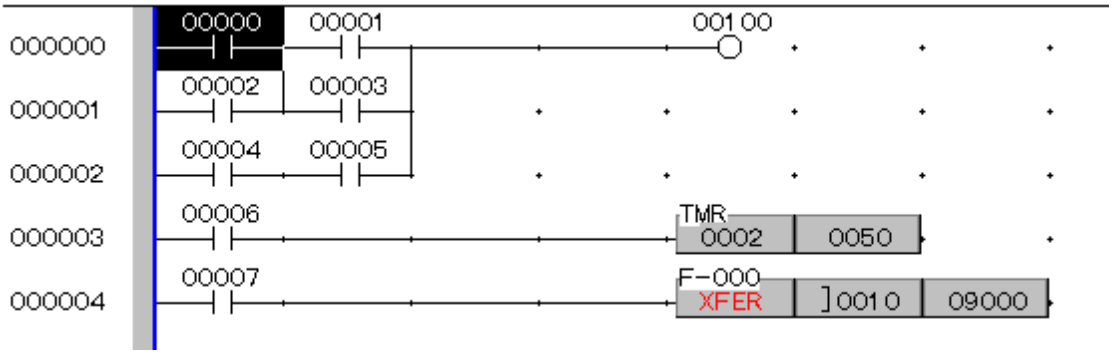
(Example of the change to the ladder)

Mnemonic program

000000	STR	00000
000001	OR	00002
000002	STR	00001
000003	OR	00003
000004	AND STR	
000005	STR	00004
000006	AND	00005
000007	OR STR	
000010	OUT	00100
000011	STR	00006
000012	TMR	0002
000013		0050
000014	STR	00007
000015	F-000	XFER
000016		]0010
000017		09000

Convert

Ladder program



Notes

If there is a mnemonic program that can not be changed to the ladder when converting mnemonic to ladder, an error message (compile error) will be displayed, and the mnemonic program will not be changed to the ladder. However, when you transfer the program from the PC, or reading the program from the file, it will be changed to the ladder (abnormal ladder).

(Example of the compile error)

000000	STR	00000
000001	STR	00001
000002	OUT	00100
000003	NOP	

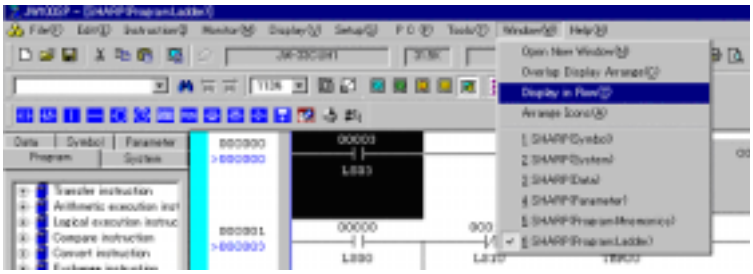
6-3 Notes When Editing Program

■ Notes for Editing Programs in Several Windows.

You can read several parts of the ladder diagram at the same time when you open several windows by the program of the same name. You can edit easily, for example, the "copy circuit" by looking at the two windows. However, the editing result from the active window will be reflected to an another window when you change (when you press the button, etc...) from ladder to mnemonic, or change from mnemonic to ladder.

●Operation example

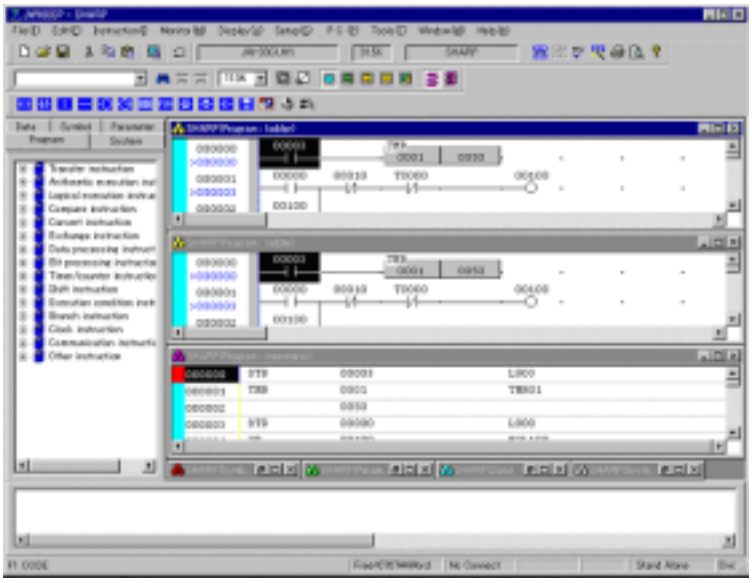
1. When the windows other than the [Program: Ladder]/[Program: Mnemonic] windows are minimized and when the [Program: Ladder] window is active, click [Window]-[Open New Window] of the menu bar.



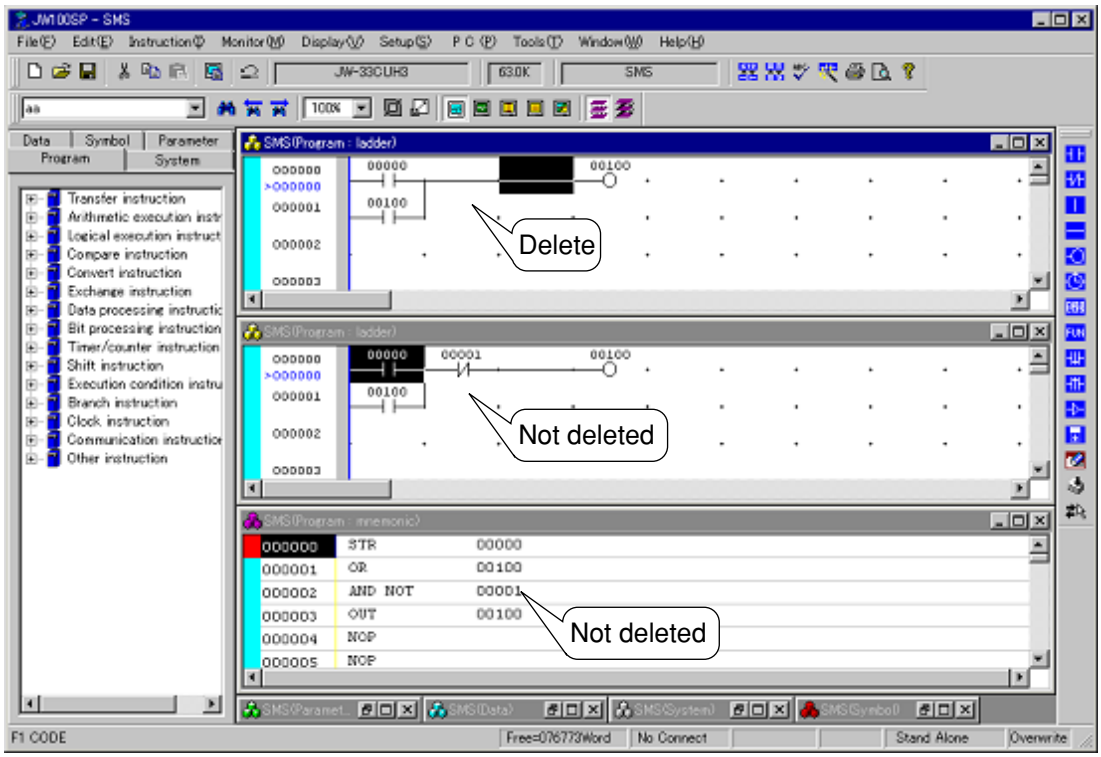
⇒ The second [Program: Ladder] window will be opened.

2. Click [Window]-[Display in Row] of the menu bar.

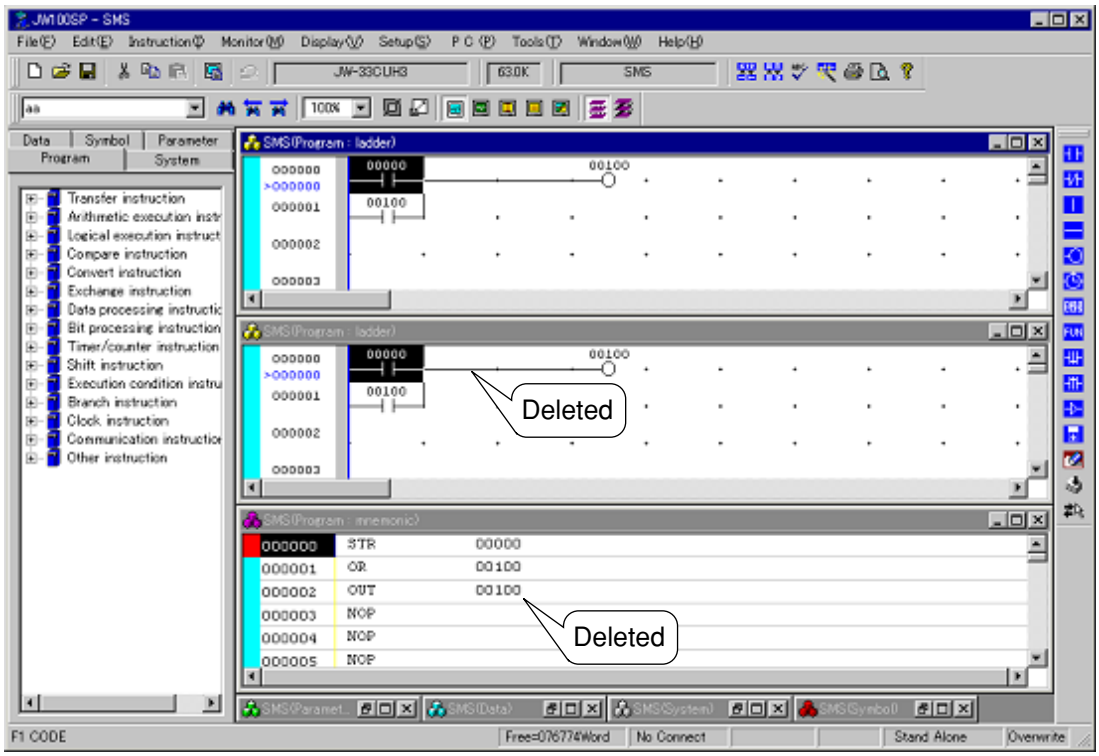
⇒ Two [Program: Ladder] windows and a [Program: Mnemonic] window will be displayed.



3. Edit the program at the [Program: Ladder] window. At this moment, the editing result will not be reflected to the other window.



4. If you click the button of the toolbar for editing ladder when the edited [Program: Ladder] window is active, the editing result will be reflected to the other window.



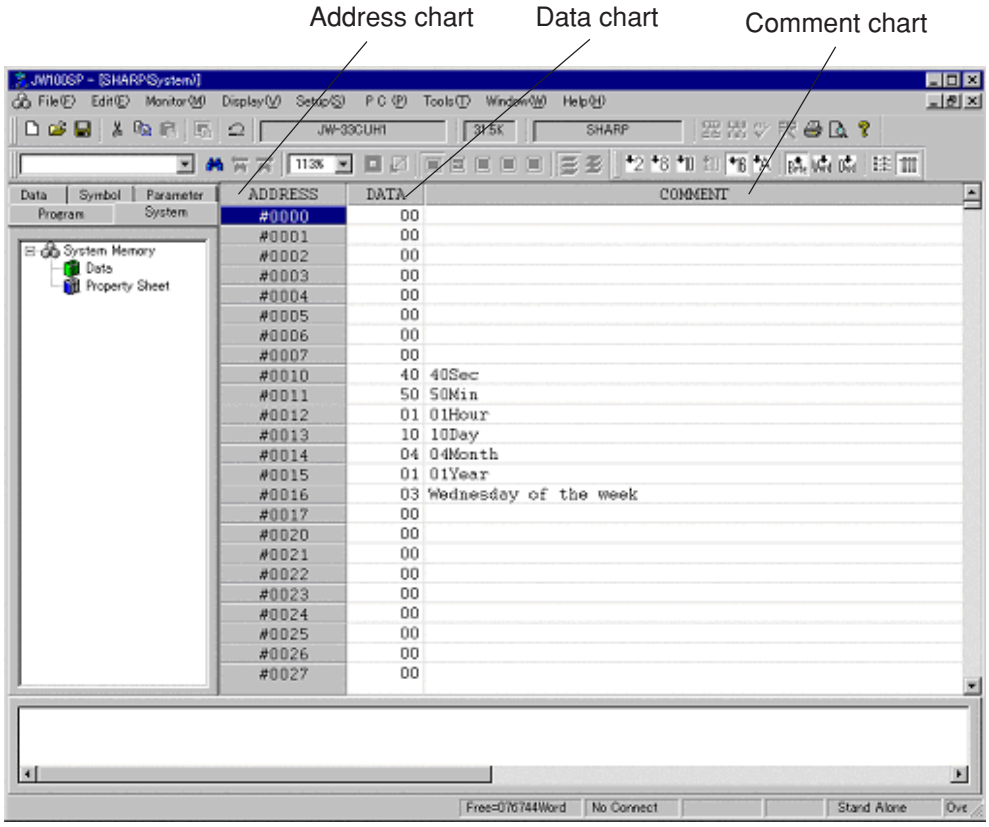
Chapter 7 Setup Each Data

The setup of system memory,data memory,parameter,symbol/comment will be explained.

7-1 Setup System Memory

■ Summary Display/Operation of the System Memory

At the system memory window, the address/data/comment of the system memory will be displayed.



- To edit the data, locate the area with the scroll bar, click the data cell, push the [Enter] key, and input the numerical value.
- During the monitoring (PC on-line), the memory volume of the PC will be displayed.
- The comment will display the already setup content each time .

(1) Operation at the system memory display area

- You can select one cell with single click.
- You can select several cells with drag.
- You can cut/copy/paste the selected area by the [Edit] menu , or by the shortcut menu which is displayed by clicking the right of the mouse.

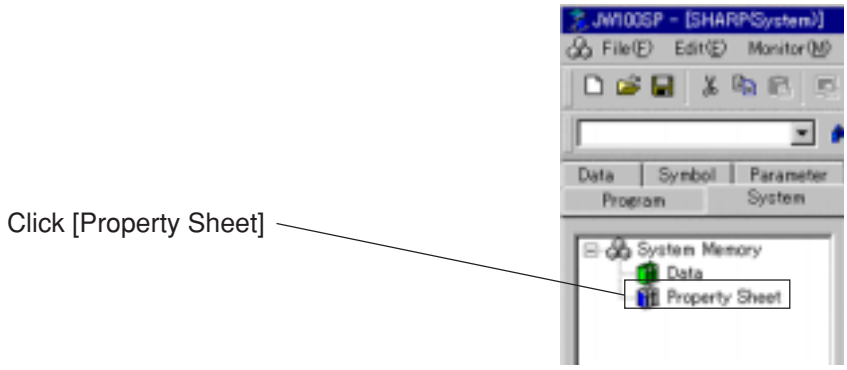
(2) Select operation of display

You can operate the following using the [Display] menu or the toolbar for editing data.

- Select data display of the system memory from binary notation/octal notation/decimal notation /hexadecimal notation, or ASCII.
- Select the data length of the system memory from byte/word/double word. This selection is all valid in the display area of the system memory.
- Select either display as a list (display several data in one line) or display in detail (display one data and its comment in one line.)

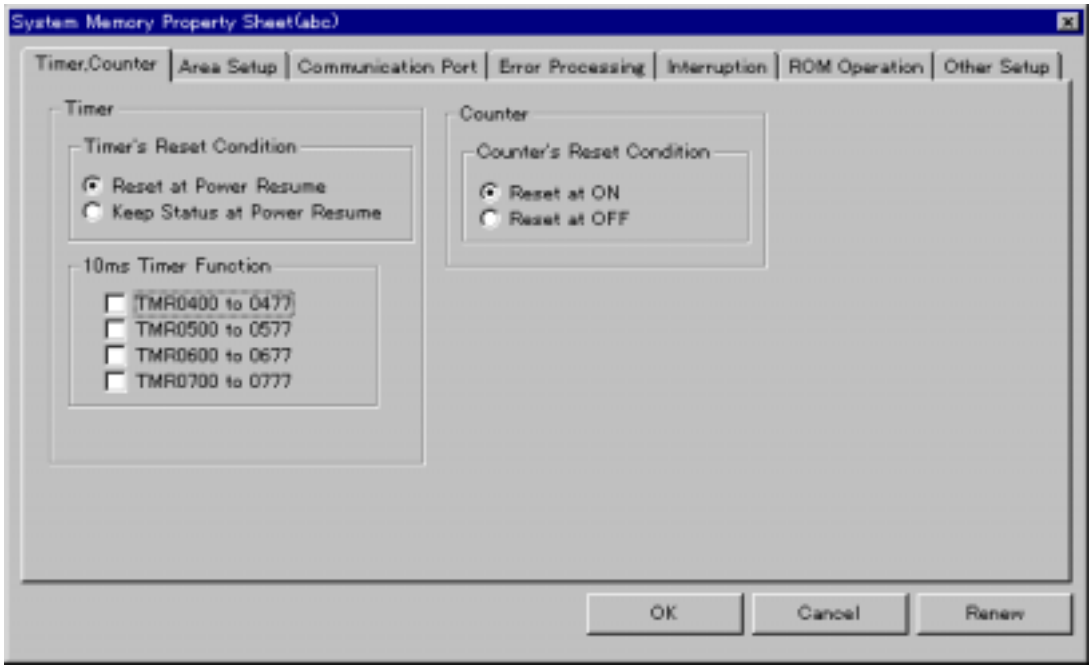
■ Setup/Display of Property Sheet

Setup/display the system memory by the property sheet type.
The property sheet will be displayed when you click [Property Sheet] of the tree bar.
Depends on the PC model, the setup item/content will be different.



(PC mode : JW30H display)

● Property Sheet (PC model : in case of JW30H)



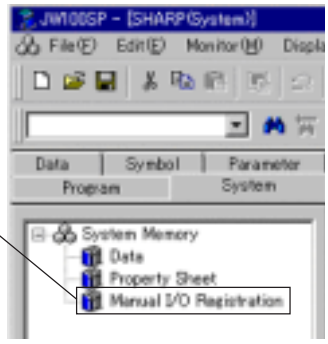
Setup Item (JW30H)	Content
Timer, Counter	Timer's reset condition, 10 ms timer function, Counter's reset condition
Area Setup	Latched relay area, Output hold address, Comment memory (kinds)
Communication Port	Port 1/2 (transfer rate, parity, stop bit, station numbe)
Error Processing	Continues operation (at fuse blown, at option module error, at I/O link master station error), Allowable power interruption time
Interruption	Timer Interruption, Condition of input interruption
ROM Operation	ROM operation mode, Contents stored in ROM
Other Setup	Constant scan, Top address of rack

Operation Button	Content
OK	Data of system memory is modified, and the property sheet will be closed.
Renew	Data of system memory is modified, but the property sheet will not be closed.
Cancel	Teh Setup Content will not be modified, but the property sheet will be closed.

■ Manual I/O Registration (JW50/70/100,JW50H/70H/100H)

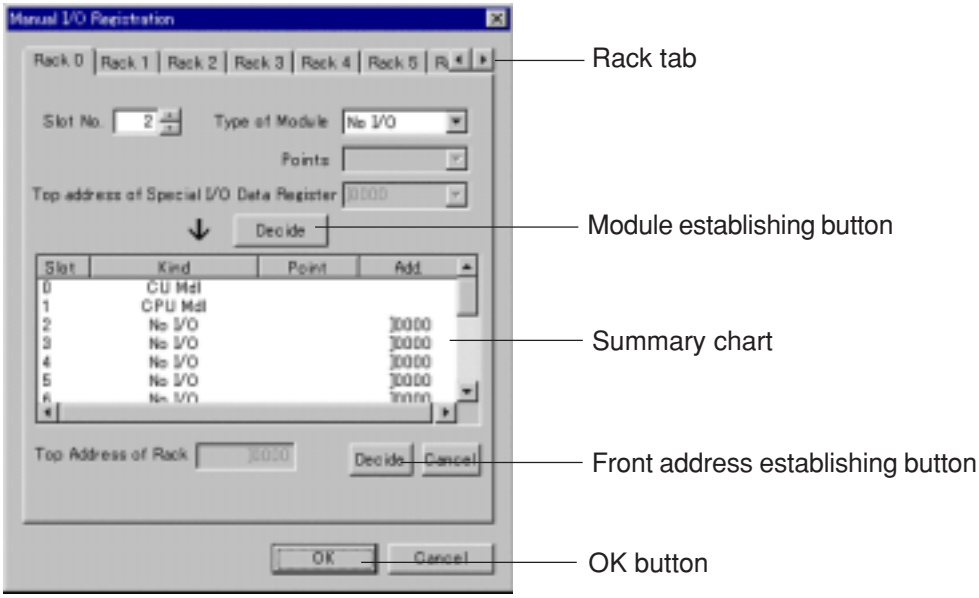
In case of JW50/70/100 and JW50H/70H/100H, you can setup the kind/points of the module that is to be put on each rack/slot when using the JW input/output module.
You can do the setup at the displaying [Manual I/O Registration] dialog box after clicking the [Manual I/O Registration] of the tree bar.

Click [Manual I/O Registration]



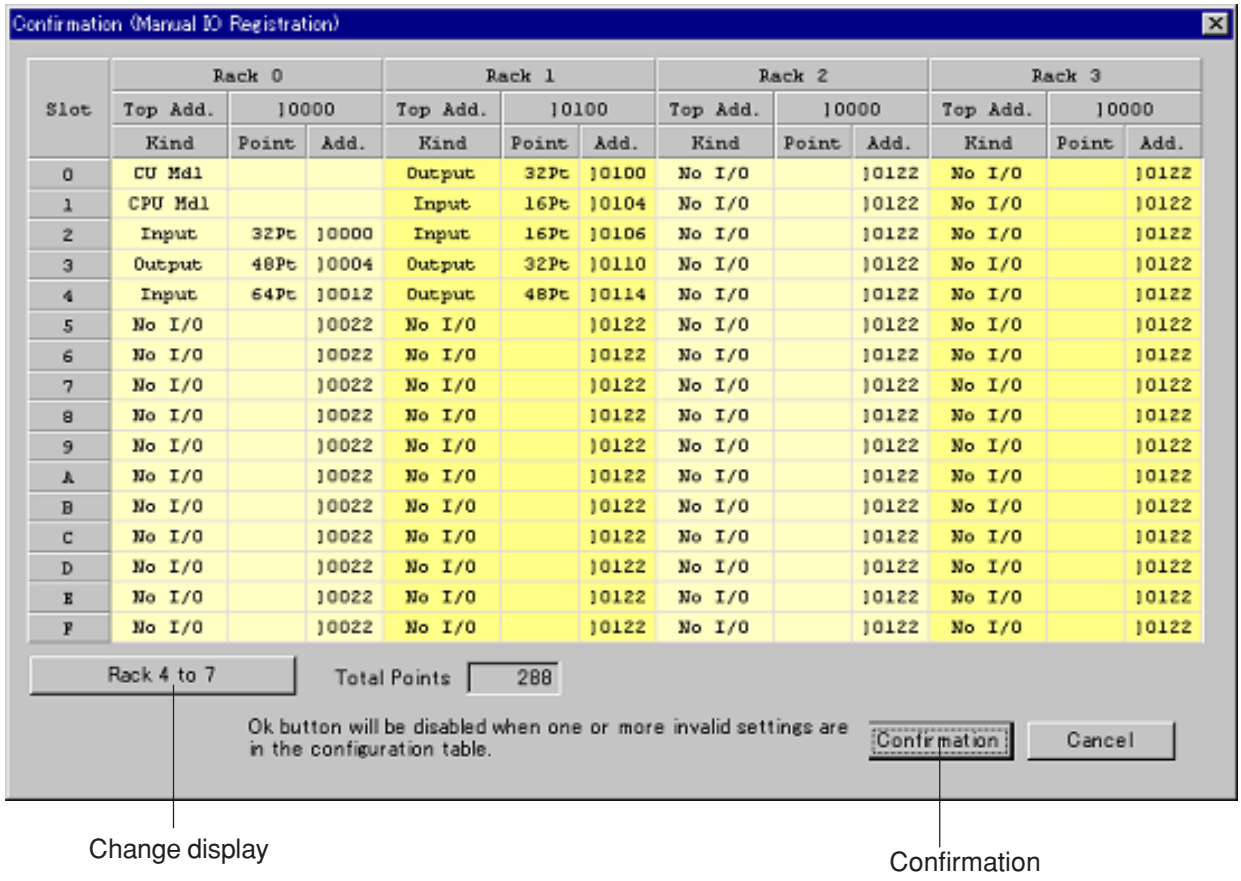
(PC model：JW50/70/100, JW50H/70H/100H display)

● [Manual I/O Registration] dialog box



Item/Button of Setup /Operation	Content
Rack Tab	Select the rack number (0 to 7)
Slot No.	Select the slot number.
Type of Module	Select the kinds of module from "input, output, special I/O (input, output, input /output), dummy, no I/O."
Points	Select the points in 16-point module.
Top address of Special I/O Data Register	Setup top address of the register for changing data with the special I/O module. ・The setup is valid when selecting the "special I/O" by the type of module.
Module establishing button	The content of the setup unit will be displayed in the summary chart.
Top address of Rack	Setup the top address of rack ・The setup is valid when the rack number is between 1 and 7.
Front address establishing button	The top address of the setup rack will be displayed in the summary chart.
Summary Chart	If you click module establishing button/top address establishing button, setup/modified "slot number, kind of module, points, I/O address" will be displayed in the selected rack.
OK button	Open the [Confirmation (Manual I/O Registration)] dialog box to confirm the settings. ⇒ Refer to the next page.

● **[Confirmation (Manual I/O Registration)] dialog box**

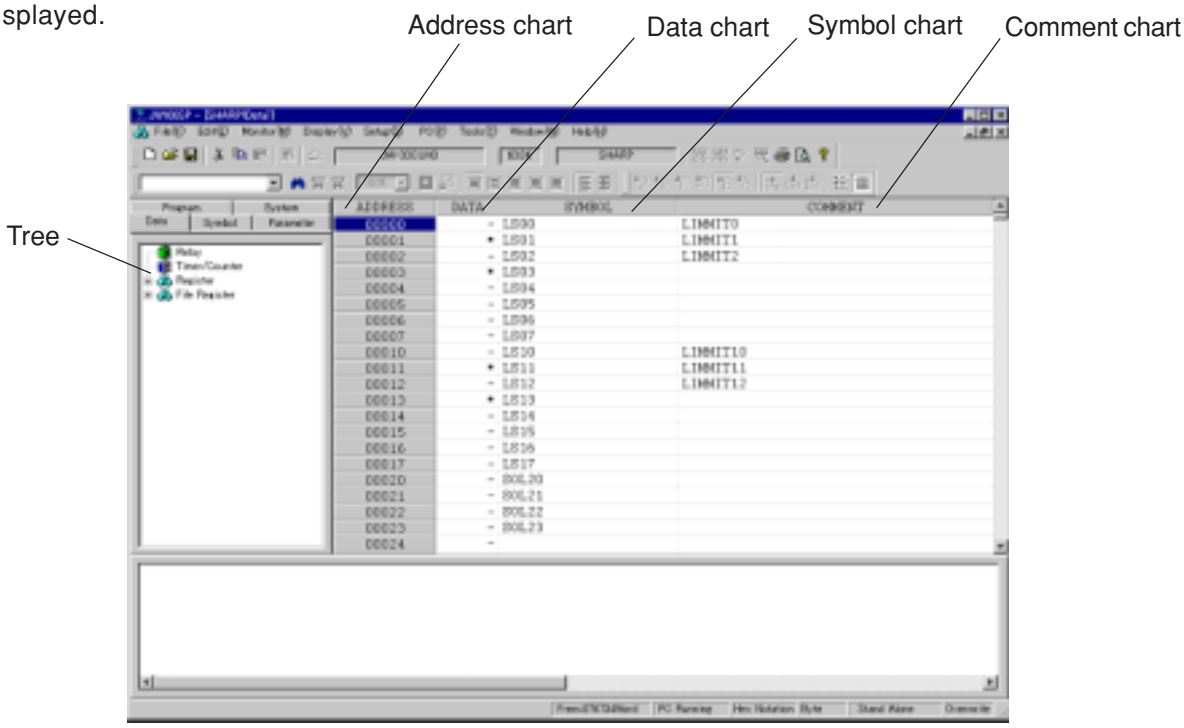

Confirmation (Manual IO Registration)
Slot
Rack 0
Rack 1
Rack 2
Rack 3
Top Add.
]0000
]0100
Kind
Point
Add.
0 CU Mdl]0100 No I/O]0122 No I/O]0122
1 CPU Mdl Input 16Pt]0104 No I/O]0122 No I/O]0122
2 Input 32Pt]0000 Input 16Pt]0106 No I/O]0122 No I/O]0122
3 Output 48Pt]0004 Output 32Pt]0110 No I/O]0122 No I/O]0122
4 Input 64Pt]0012 Output 48Pt]0114 No I/O]0122 No I/O]0122
5 No I/O]0022 No I/O]0122 No I/O]0122 No I/O]0122
6 No I/O]0022 No I/O]0122 No I/O]0122 No I/O]0122
7 No I/O]0022 No I/O]0122 No I/O]0122 No I/O]0122
8 No I/O]0022 No I/O]0122 No I/O]0122 No I/O]0122
9 No I/O]0022 No I/O]0122 No I/O]0122 No I/O]0122
A No I/O]0022 No I/O]0122 No I/O]0122 No I/O]0122
B No I/O]0022 No I/O]0122 No I/O]0122 No I/O]0122
C No I/O]0022 No I/O]0122 No I/O]0122 No I/O]0122
D No I/O]0022 No I/O]0122 No I/O]0122 No I/O]0122
E No I/O]0022 No I/O]0122 No I/O]0122 No I/O]0122
F No I/O]0022 No I/O]0122 No I/O]0122 No I/O]0122
Rack 4 to 7
Total Points
288
Ok button will be disabled when one or more invalid settings are in the configuration table.
Confirmation
Cancel
Change display
Confirmation

Button	Function
Change display	Switch the view between racks 0 to 3 and racks 4 to 7.
Confirmation	Realize the settings in the system memory.

7-2 Setup Data Memory

■ Summary Display/Operation of Data Memory

At the data memory window, the address/data/symbol/comment of the data memory will be displayed.



(PC model : JW-33CUH1 display)

- Select relay, timer /counter, register, file register by the tree of the tree bar. In addition, select the register area (]0000,b0000,09000,19000 ⋯ 99000, E0000) at the register, and select file area (FILE 1, FILE 2 ⋯) at the file register.
- To edit the data, locate the area with the scroll bar, and click the data cell. If you want to edit the register data, push the [Enter] key, and input the numerical value.
- During the monitoring (PC on-line), the memory volume of the PC will be displayed.
- At the symbol chart or the comment chart, the data memory that was registered at the [Symbol] window will be displayed. You can also input characters directly in the symbol chart or the comment chart.

(1) Operation at the data memory display area

- You can select one cell with single click.
- You can select several cells with drag.
- You can cut/copy/paste the selected area by the [Edit] menu, or by the shortcut menu which is displayed by clicking the right of the mouse.

(2) Select operation of display

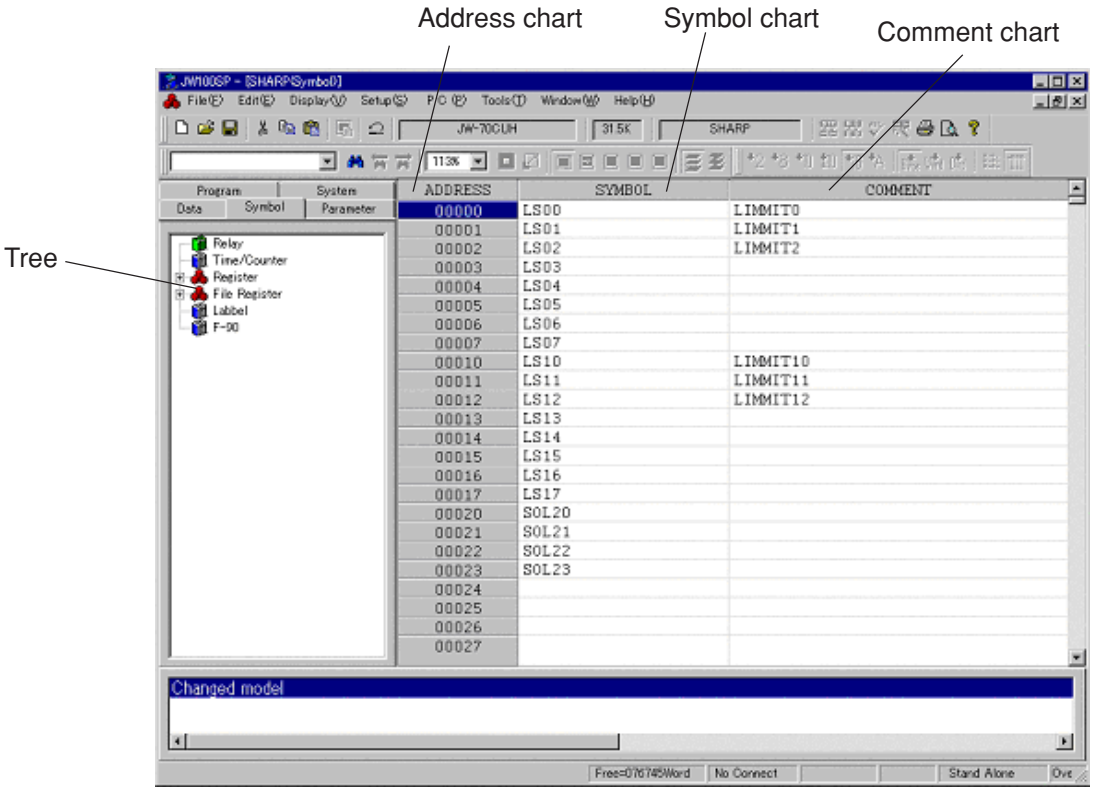
You can operate the following using the [View] menu or the toolbar for editing data.

- Select data display of the data memory from binary notation/octal notation/decimal notation/ decimal notation (with +-)/ hexadecimal notation, or ASCII.
- Select the data length of the data memory from byte/word/double word. This selection is all valid in the display area of the system memory
- Select either display as a list (display several data in one line) or display in detail (display one data and its symbol/comment in one line.)

7-3 Setup Symbol/Comment

■ Summary Display/Operation of Symbol/Comment

At the symbol・comment window, the address/symbol/comment of the data memory will be displayed.



(PC model : JW-33CUH1 display)

・Select relay, timer/counter, register, file register by the tree of the tree bar. In addition, select the register area (]0000,b0000,09000,19000 ⋯ 99000, E0000) at the register, and select flie area (FILE 1, FILE 2 ⋯) at the file register.
・To input or edit the symbol or comment, locate the area with the scroll bar, click the data cell, push the [Enter] key, and input the characters.
・You can register maximum symbols at 16 characters, and maximum comments at 28 characters.
・Up to maximum 32000 symbol/comment s can be registered.
・If you setup "Input symbol check is done" at the [Setup]-[Check Input's Same Symbol] of the menu bar, the confirmation dialog box will be displayed at the time of inputting the same symbol.
・You can select one cell with single click.
・You can select several cells with drag.
・You can cut /copy /paste the selected area by the [Edit] menu , or by the shortcut menu which is displayed by clicking the right of the mouse.

■ Applying Text File

You can use the text file (file of the extension txt) as the user file of the symbol/comment.

(1) Register to the text file

Describe the data memory address, symbol and comment in one line, and they are divided by the tab.

Data memory address [Tab] Symbol [Tab] Comment [Enter]

Example) An example when created by Microsoft Word 97

＊Microsoft Word is the registered product of Microsoft Corporation, America.

00000	LS00	Rising side limit 0
00013	LS13	Retreating side limit 13
]0100	DISP	Display machine output
59000	ERROR	Register error

Symbol Comment

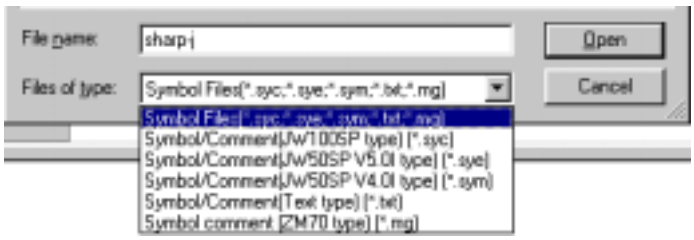
Address (possible for zero suppress, valid for same address which comes after.)

Created documents are saved in the file by "text＋return (＊.txt) type."

(2) Read text file

Import the file by selecting [File]-[Import].

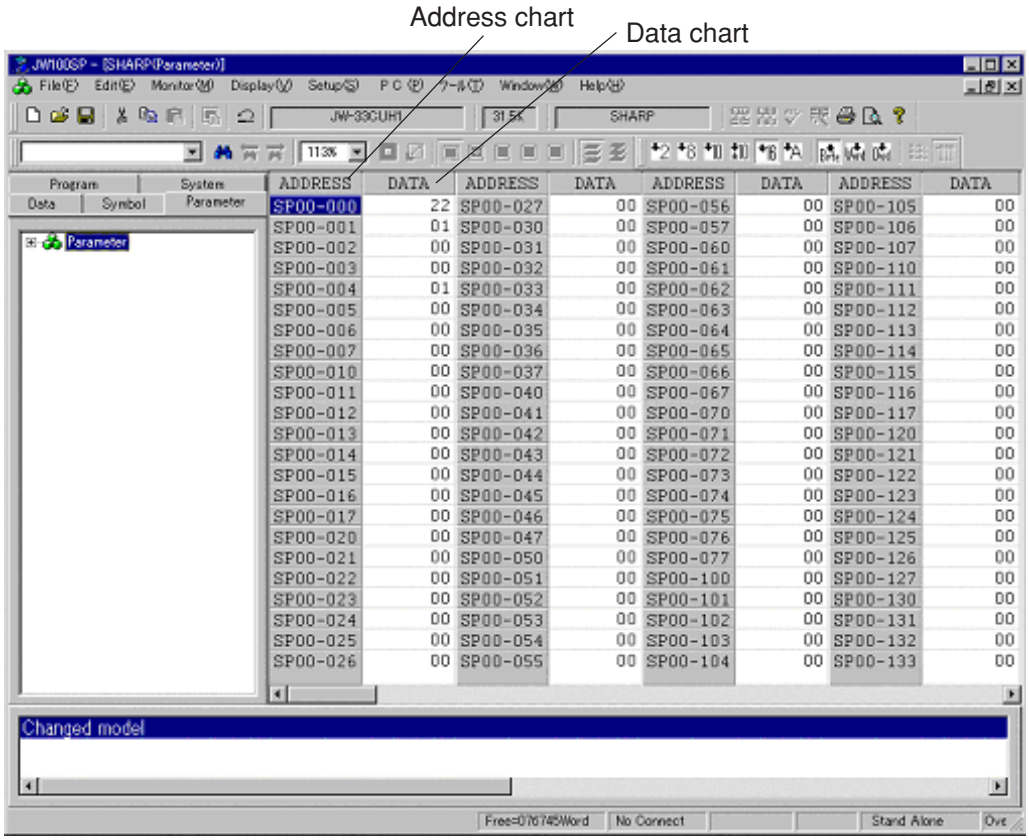
The file kind is "Symbol/Comment (Text type)(＊.txt)."



7-4 Setup Parameter

■ Summary Display/Operation of Parameter

In case of the PC model series JW20/JW30H, the parameter of the special I/O module/option module is setup at the parameter window. (In other model series, the parameter window is not used.)
At the parameter window, the address and data will be displayed.



(PC model : JW-33CUH1 display)

- To edit the data, locate the area with the scroll bar, click the data cell, push the [Enter] key, and input the numerical values.
- During the monitoring (PC on-line), the memory volume of the PC will be displayed.

(1) Operation in the parameter display area

- You can select one cell with single click.
- You can select several cells with drag.
- You can cut/copy/paste the selected area by the [Edit] menu , or by the shortcut menu which is displayed by clicking the right of the mouse.

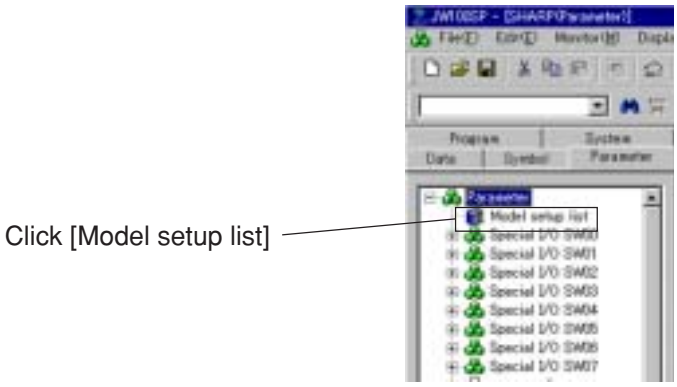
(2) Select operation of display

You can operate the following using the [Display] menu or the toolbar for editing data.

- Select data display of the data memory from binary notation/octal notation/decimal notation/ decimal notation (with +-)/ hexadecimal notation, or ASCII.
- Select the data length of the parameter from byte/word/double word. This selection is all valid in the display area of the parameter.

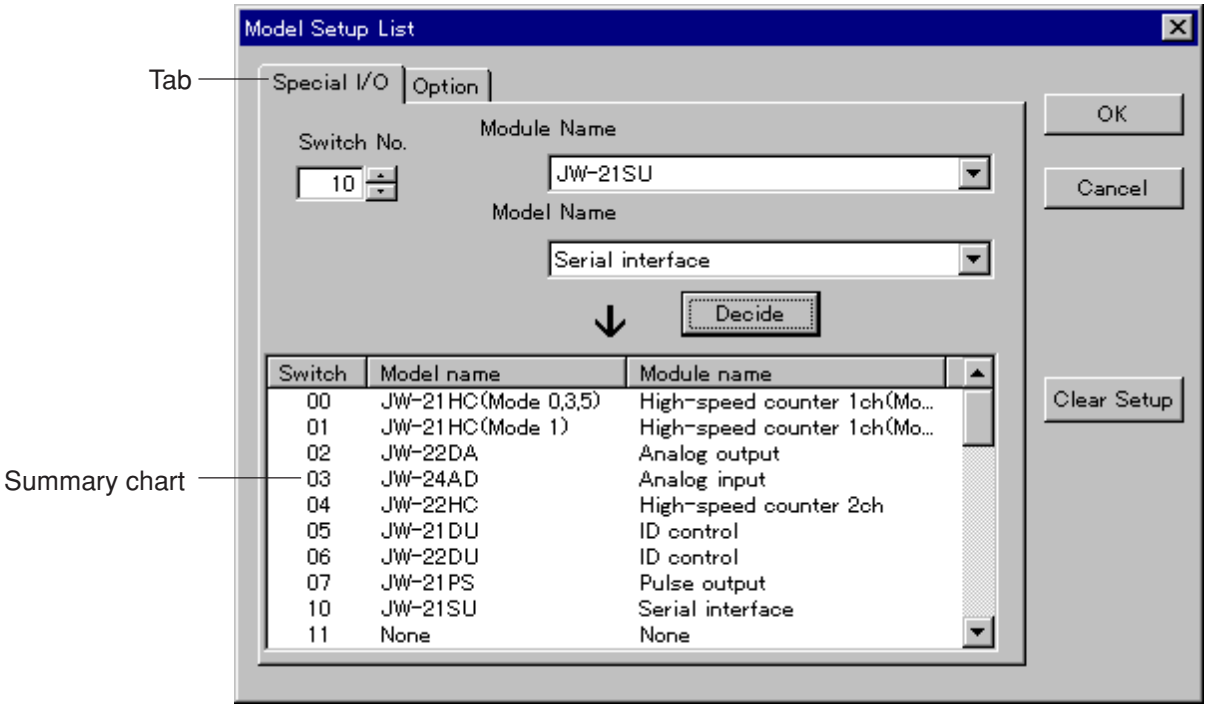
■ Setup Model (Special I/O module/option module)

Setup the model of the special I/O module and the option module at each switch number.
If you click [Model setup list] of the tree bar, the [Model Setup List] dialog box will be displayed.



(PC model : JW-30H display)

● **[Model Setup List] dialog box**



(PC model : JW30H display)

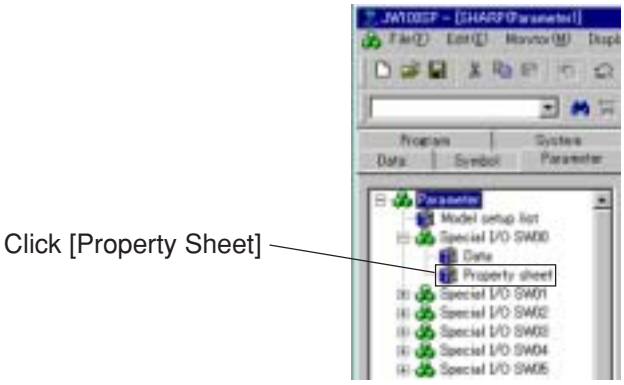
・"Select special I/O or option" and "select switch number and module name (model name)" are executed.

Setup/Operation Item/Button	Content
Tab	Select "special I/O" or "option."
Switch No.	Select the number of the module No. switch.
Module name	Select the classification of the module in the module name.
Model name	Select the classification of the module in the model name.
Decide Button	Write the selected the module name/model name to the summary chart.
Summary Chart	Display the module name/model name that were selected by each switch number
Clear Setup	Clear all content that was setup in the summary chart.

■ Setup/Display of Property Sheet

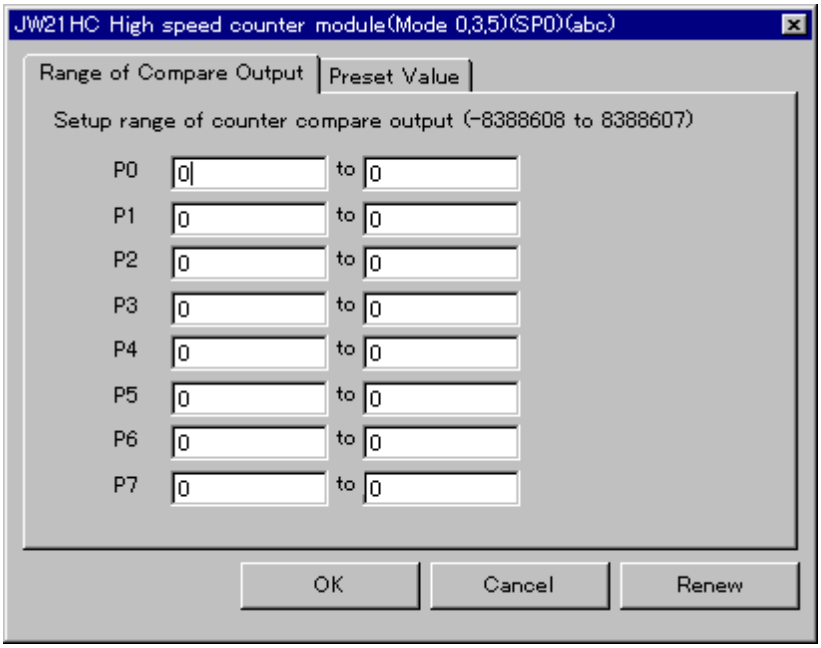
Setup/display the parameter in property sheet type.

If you click [Property sheet] of the switch number (special I/O /option) which is to be assigned, the property sheet that was setup at the [Model setup list] will be displayed.



(PC model : JW30H display)

● Property Sheet



(Display PC model : JW30H, module name : JW-21HC (mode 0, 3, 5))

・Depends on each module, the setup content of the property sheet varies.

Notes

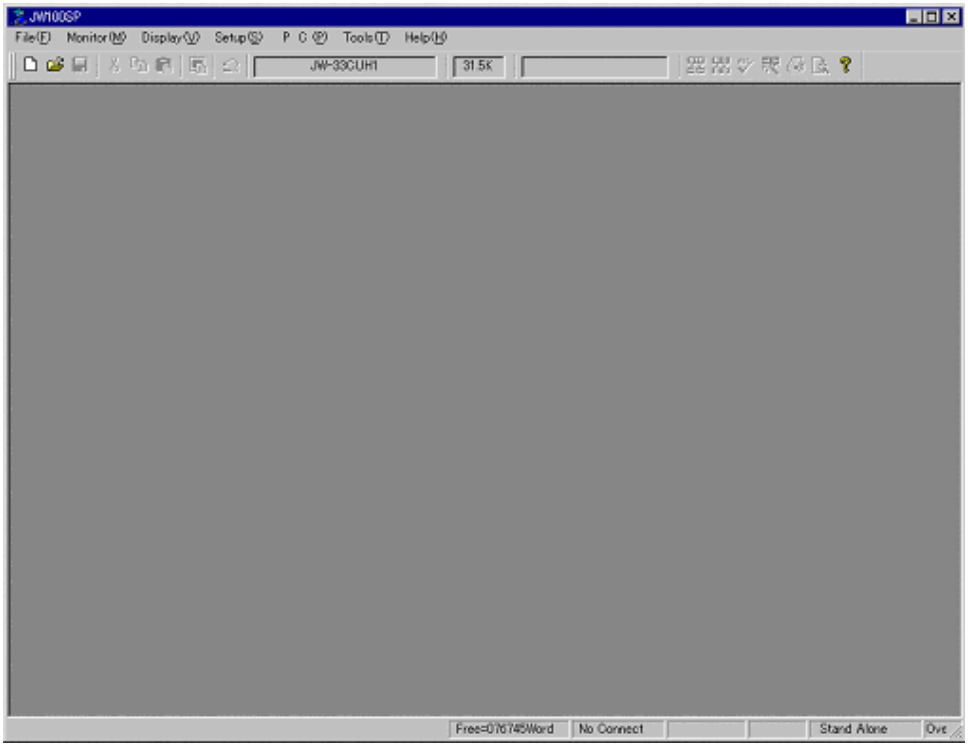
・The parameter that is setup by the property sheet is the parameter that will be stored in the main PC. There is an module that stores the parameter inside the module. In this case, setup at the "Option parameter tool" window. ⇒ Refer to the next page.

7-5 Setup Option Parameter Tools

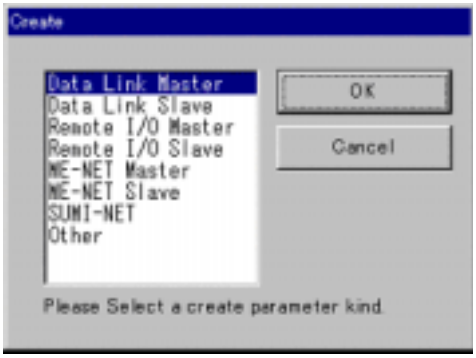
■ Display/Settings of Option Parameter Tools

For the model that saves parameters in the option module, set the parameters with option parameter tools.

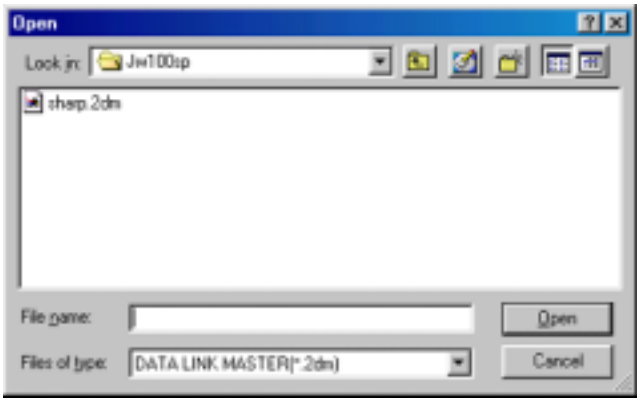
・Select [Tool]-[Option Parameter], and the [Option Parameter tool] windows is displayed.



・Select [File]-[New], and select the type of option module to set the parameters. If you already have a file of option parameters, open it by selecting [File]-[Open].

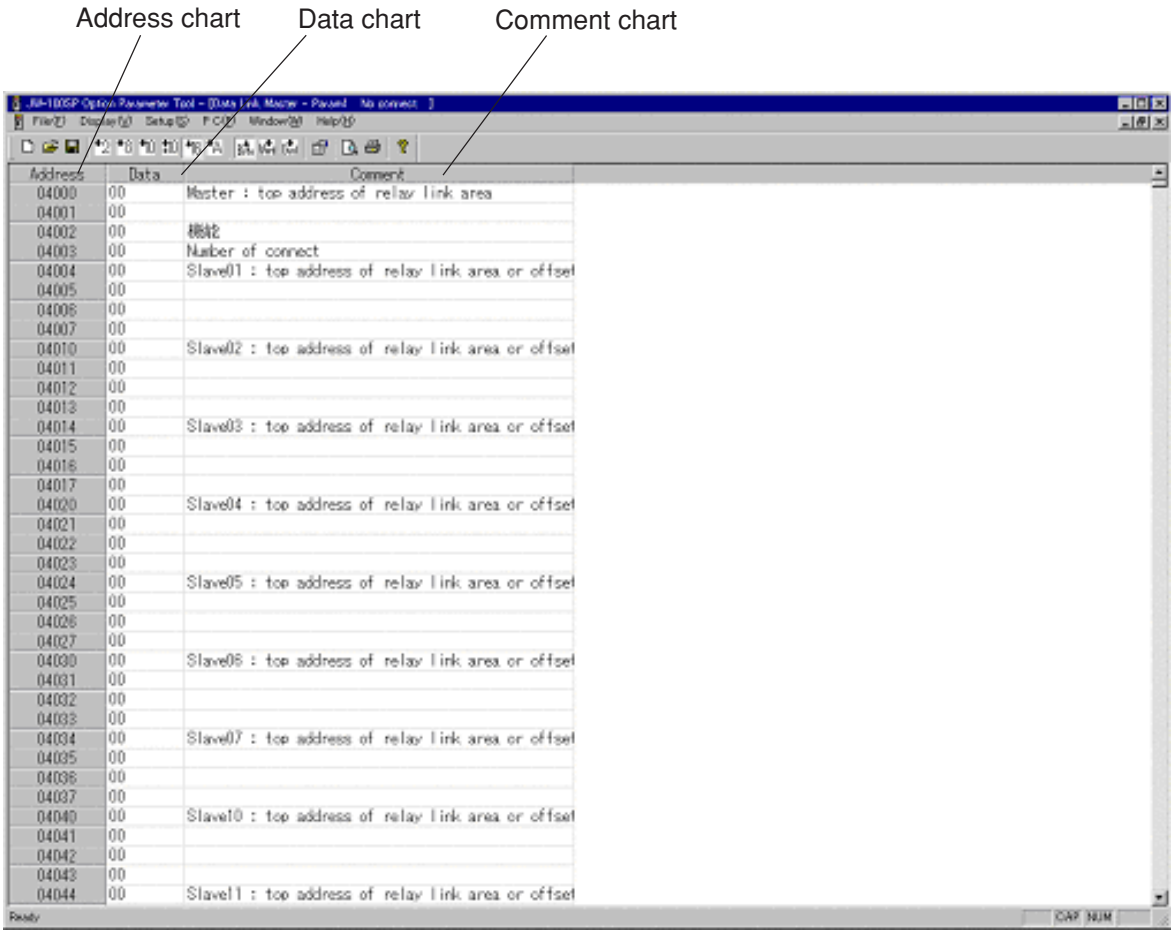


[New] dialog box



[Open] dialog box

・In the [Option Parameter Tool] window, the addresses, the data, and the comments are displayed.


Address chart
Data chart
Comment chart
Address
Data
Comment
04000 00 Master : top address of relay link area
04001 00
04002 00 機結
04003 00 Number of connect
04004 00 Slave01 : top address of relay link area or offset
04005 00
04006 00
04007 00
04010 00 Slave02 : top address of relay link area or offset
04011 00
04012 00
04013 00
04014 00 Slave03 : top address of relay link area or offset
04015 00
04016 00
04017 00
04020 00 Slave04 : top address of relay link area or offset
04021 00
04022 00
04023 00
04024 00 Slave05 : top address of relay link area or offset
04025 00
04026 00
04027 00
04030 00 Slave06 : top address of relay link area or offset
04031 00
04032 00
04033 00
04034 00 Slave07 : top address of relay link area or offset
04035 00
04036 00
04037 00
04040 00 Slave10 : top address of relay link area or offset
04041 00
04042 00
04043 00
04044 00 Slave11 : top address of relay link area or offset
Ready
CAP NUM

(Example for display: Data link master station)

・To edit the data, locate the area with the scroll bar, click the data cell, push the [Enter] key, and input the numerical values.

(1) Operation in the area of option parameters

You can select one cell with single click.

(2) Selection of display

You can perform the operations below with the [Display] menu or toolbar for editing data.

・Select the data view of parameters from binary notation/octal notation/decimal notation/decimal notation (with +-)/ hexadecimal notation, or ASCII.

・Select the data length of parameters from bytes/words/double words. This selection works in all the display area of parameters.

(3) [New]/[Open]/[Close] in the [File] menu

You can set parameters of several option modules in a single option parameter tool.

Select [File]-[New], open the [New] dialog box, and select the type of option module.

(4) Model selection in the [File] menu

Select the model of the CU unit you will equip with the option module.

(5) Sending of the [PC] menu

Connect the personal computer to the option module, and read/write/verify the parameters.

(6) Operation settings of the [PC] menu

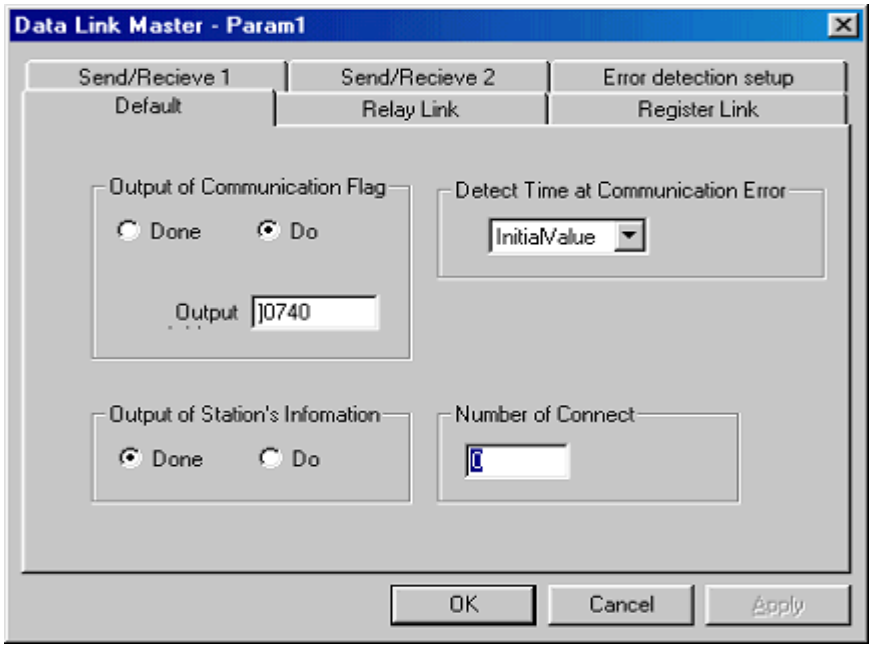
Item	Function
Start of Link	Start the link operation
Stop of Link	Stop the link operation
Start after writing EEPROM	Stat the link operation after writing the parameters into EEPROM in the option module.
Writing EEPROM	Write the parameters into EEPROM in the option module.
Parameter initialization	Initialize the parameters in the option module.

(7) Start/Stop of the [PC] menu

Start or stop the PC.

■ Setup/Display of Property Sheet

You can set up or display the option parameters in the property sheet form.
Select [Display]-[Property Sheet]. The property sheet of the option module that is currently active is displayed.



(Display example: Property Sheet of Data Link Master)

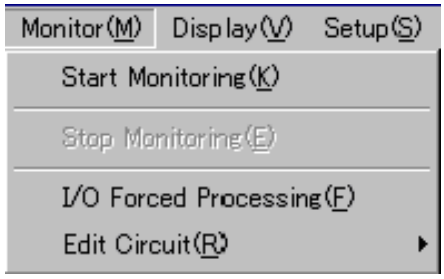
・Items in the property sheet vary according to the type of option module. For the details of the parameter sheet, refer to the manuals of the option module.

Chapter 8 Monitor

By connecting the PC and the personal computer, you can monitor the ON/OFF condition of the relay, or monitor the current value of the register. Before monitoring, execute the "communication setup" first. (Refer to the page 5-48)

If you click [Monitor] of the menu bar at the main/program/system/data/parameter window, the [Monitor] menu summary will be displayed.

(Details in pages)



8-1

8-1

8-24

8-26

・In the [Main] window, you can select [I/O Forced Processing] only.

← Only the [Program : Ladder] window

8-1 Start Monitoring, Stop Monitoring (Program/System/Data/Parameter)

Start/stop the monitor of the active window.

・Only start/stop the monitor of the active window, and it does not affect to the other window.

[1] Monitor at the [Program :Ladder] window

The [Program : Ladder] window is organized by the line number (address number) and the display area of the ladder.

(1) Monitor Display

● **Display relay/coils**

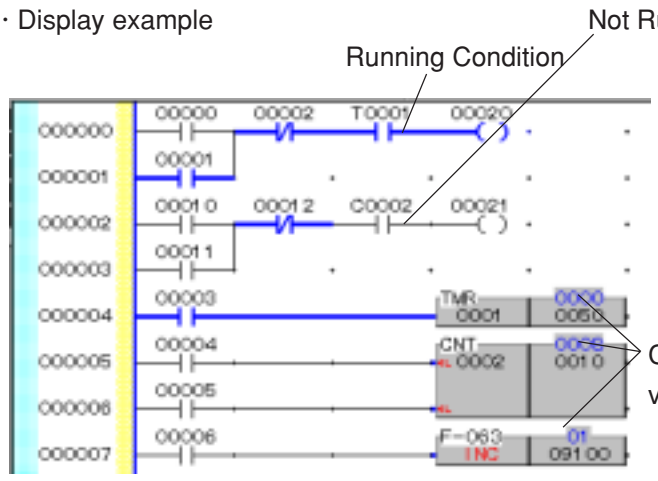
When the circuit is running, a thick line is displayed, and when the circuit is not running, a thin line is displayed.

● **Display application instruction**

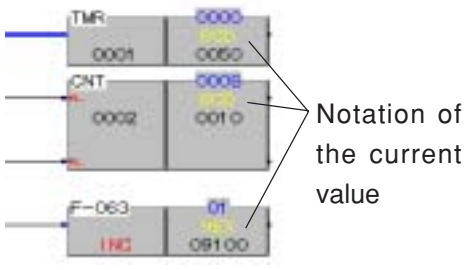
Display the monitor by the monitor display type and the register display type that were setup at the [Setup Monitor Display Mode] dialog box.

	Display Content
Input line	When the input of the application instruction is running, a thick line is displayed, and when the circuit is not running, a thin line is displayed.
Current Value	The current value of the register by the notation type of the setup at the register display type will be displayed at the top of register.
Notation Display	When the setup of the monitor display type is the detail display, the notation of the current value will be displayed.

・Display example



(Simple display)



(Detail display)

Notes

・Before monitoring, read the program from the PC by the PC transfer (Refer to the page 5-59) or write the program to the PC. If the program of both the PC and the personal computer is different, you can not monitor the right calculation.

(2) Set/ reset of the relay

Set/reset the relay of the cursor position.

● **Operation method**

① Move the cursor to the relay where you are going to set/ reset.

② Click the right side of the mouse.

⇒ The "set/ reset relay" menu will be displayed.

・If you click [Sets relay] or [Resets relay], the relay of the cursor position will be set/ reset.

[2] Monitor at [Program: Mnemonic] window

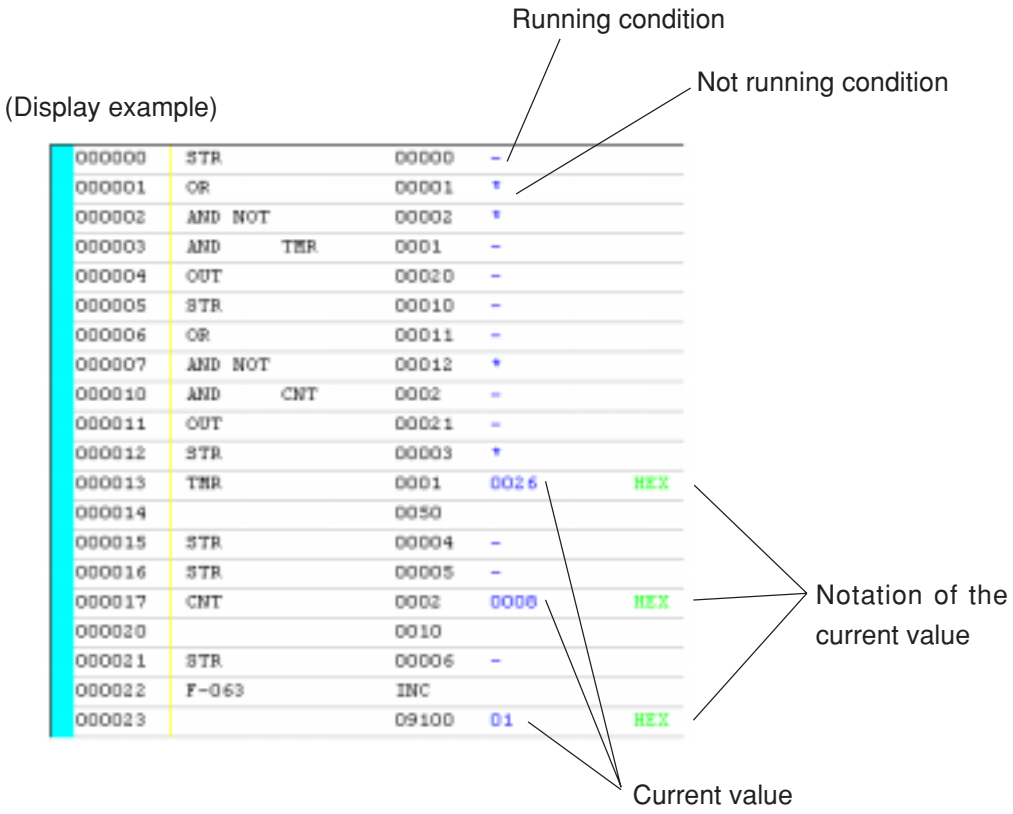
The [Program: Mnemonic] window is organized by the display area of the address number and the mnemonic.

● **Display relay/coil**

When the circuit is running, a "＊" will be displayed, and when the circuit is not running, a "—" will be displayed.

● **Application instruction display**

	Display Content
Current Value	The current value of the register will be displayed at the right side of the register.
Notation Display	The notation of the current value will be displayed at the right side of the register .



Notes

· Before monitoring, read the program of the PC by the PC transfer (Refer to the page 5-59) or write the program to the PC. If the program of both the PC and the personal computer is different, you can not monitor the right calculation.

[3] Monitor at the [System] window

● **Monitor system memory**

Data items are renewed by communicating with the PC, and following the assigned monitor type.

● **Modify system memory**

If you double-click the data cell, or select the cell and push the [Enter] key, the item will become the input mode. If you input the [Enter] key after inputting an optional numerical value at the input mode, the system memory value of the PC will be modified.

● **Select display type**

If you use the [Display] menu or the toolbar for editing data, you can select the display type of the system memory from binary notation/octal notation/decimal notation/hexa decimal notation, or ASCII. This selection is all valid in the display area of the system memory.

● **Select data length**

If you use the [Display] menu or the toolbar for editing data, you can select the data length of the system memory from byte/word/double word. This selection is all valid in the display area of the system memory.

● **Displays as a list, Displays in detail**

If you use the [Display] menu or the toolbar for editing data, you can select either summary display (display several data in one row) or detail display (display one data and its comment in one row.)

● **Edit operation**

You can cut/copy/paste the selected area by the [Edit] menu , or by the shortcut menu which is displayed by clicking the right side of the mouse.

Notes

・By the operations described above at the time of the monitor, the value of the connected PC will be modified at the same time.

[4] Monitor at the [Data] window

● **Monitor data memory**

Data items are renewed by communicating with the PC, and following the assigned monitor type.

● **Modify current value of the register**

If you double-click the cell whose register is being monitored, or select the cell and push the [Enter] key, the item will become the input mode. If you input the [Enter] key after inputting an optional numerical value at the input mode, the data memory value of the PC will be modified.

● **Set/reset of the timer/counter**

if you click on the right side of the mouse on the line monitoring the timer・counter, the short cut menu that carries set/reset as their items will be displayed. If you select set/reset by this menu, you can set/reset the timer・counter.

● **Set/reset of the relay**

If you click on the right side of the mouse on the line monitoring the relay, the short cut menu that carries set/reset as their items will be displayed. If you select set/reset by this menu, you can set/reset the relay.

● **Select display type**

If you use the [Display] menu or the toolbar for editing data, you can select the display type of the system memory from binary notation/octal notation/decimal notation/decimal notation (with a plus/minus sign)/hexadecimal notation, or ASCII.

● **Select data length**

If you use the [Display] menu or the toolbar for editing data, you can select the data length of the data memory in byte/word/double word. This selection is all valid in the display area of the data memory.

● **Displays as a list, Displays in detail**

If you use the [Display] menu or the toolbar for editing data, you can select either summary display (display several data in one row) or detail display (display one data and its symbol/comment in one row.)

● **Edit operation**

You can cut/copy/paste the selected area by the [Edit] menu , or by the shortcut menu which is displayed by clicking the right side of the mouse.

Notes

・By the operations described above at the time of the monitor, connected value of the main PC will be modified at the same time.

[5] Monitor at the [Parameter] window

● **Monitor parameter**

Data items are renewed by communicating with the PC, and following the assigned monitor type.

● **Modify parameter**

If you double-click the data cell, or select the cell and push the [Enter] key, the item will become the input mode. If you input the [Enter] key after inputting an optional numerical value at the input mode, the parameter value of the PC will be modified.

● **Select operation of display**

You can operate the following using the [Display] menu or the toolbar for editing data.

- Select the display type of the parameter from binary notation/octal notation/decimal notation/ decimal notation (with a plus/minus sign)/hexadecimal notation, or ASCII. This selection works in the all display area of the parameter.
- Select the data length of the parameter from byte/word/double word. This selection is all valid in the display area of the parameter.

● **Edit operation**

You can cut/copy/paste the selected area by the [Edit] menu , or by the shortcut menu which is displayed by clicking the right of the mouse.

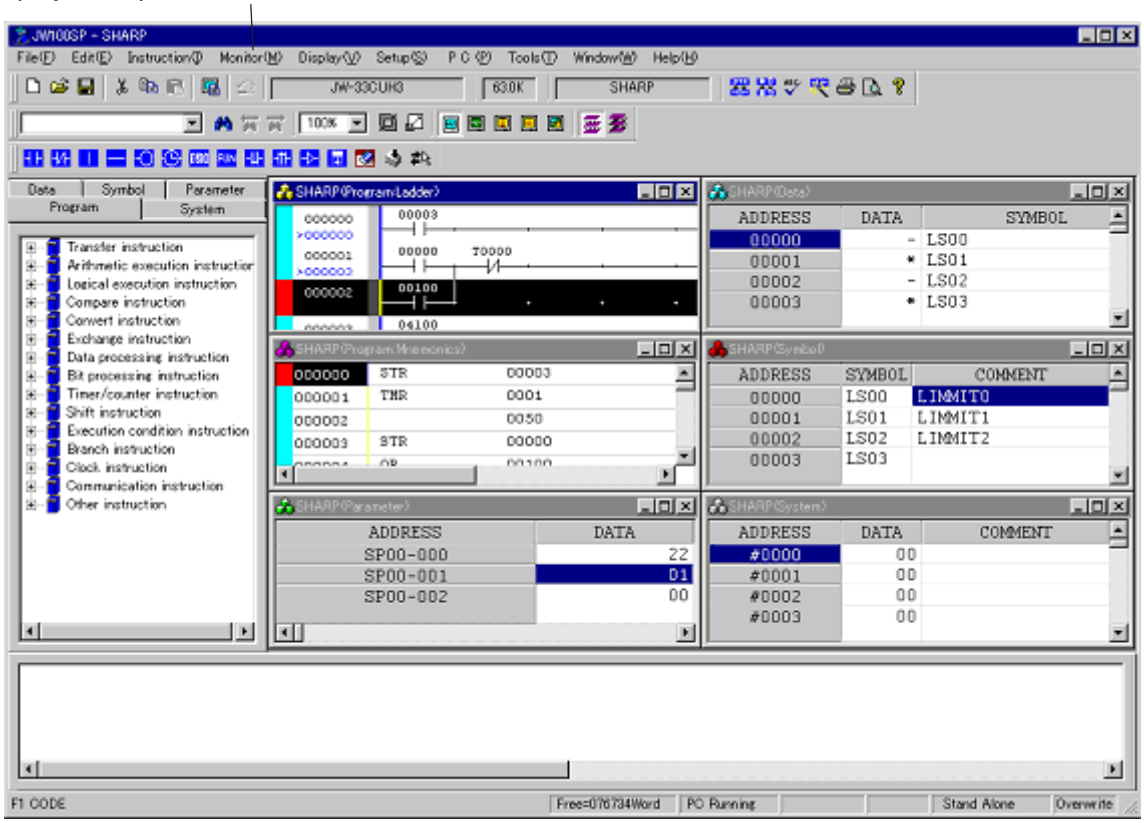
Notes

- By modifying the operations described above at the time of the monitor (only when the PC is stopping), the value of the connected PC will be modified at the same time.

[6] Monitor Several Windows at the Same Time

You can monitor several windows at the same time. However, you cannot monitor the [Program:Ladder] window and the [Program:Mnemonic] window at the same time.

・Display example ※



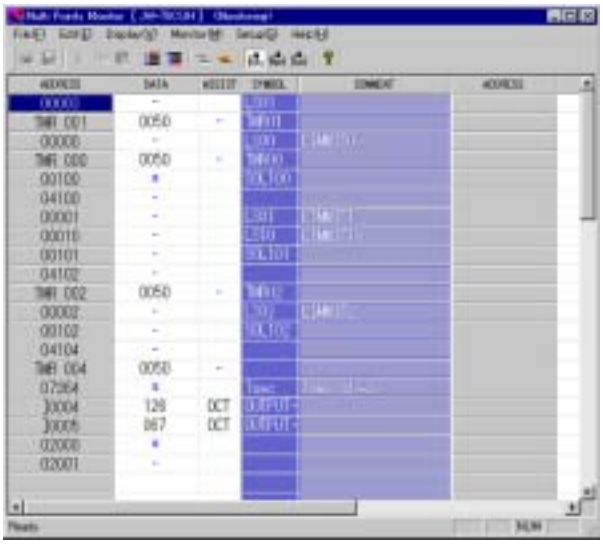
Operate start/stop of the monitor by the [Monitor] menu at every window (described above※).

8-2 Multipoints Monitor

[1] Function

You can monitor manual data in the data memory or system memory (maximum 128 items).

(Display example)



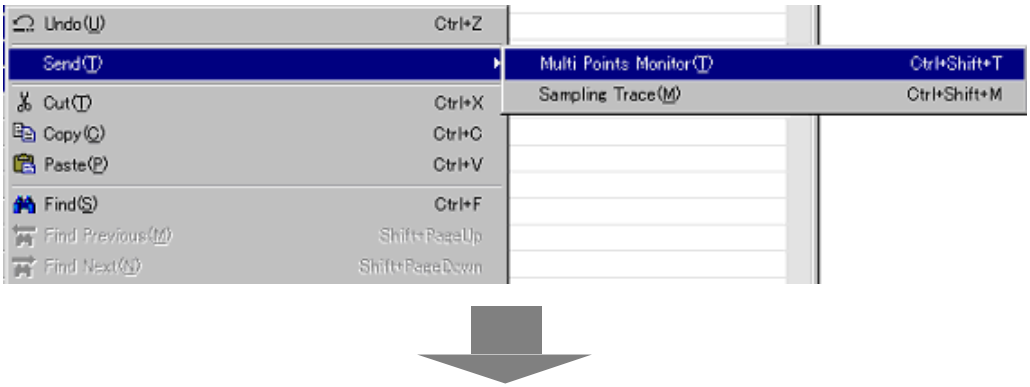
Data items are renewed by communicating with the PC, and following the assigned monitor type at each row.

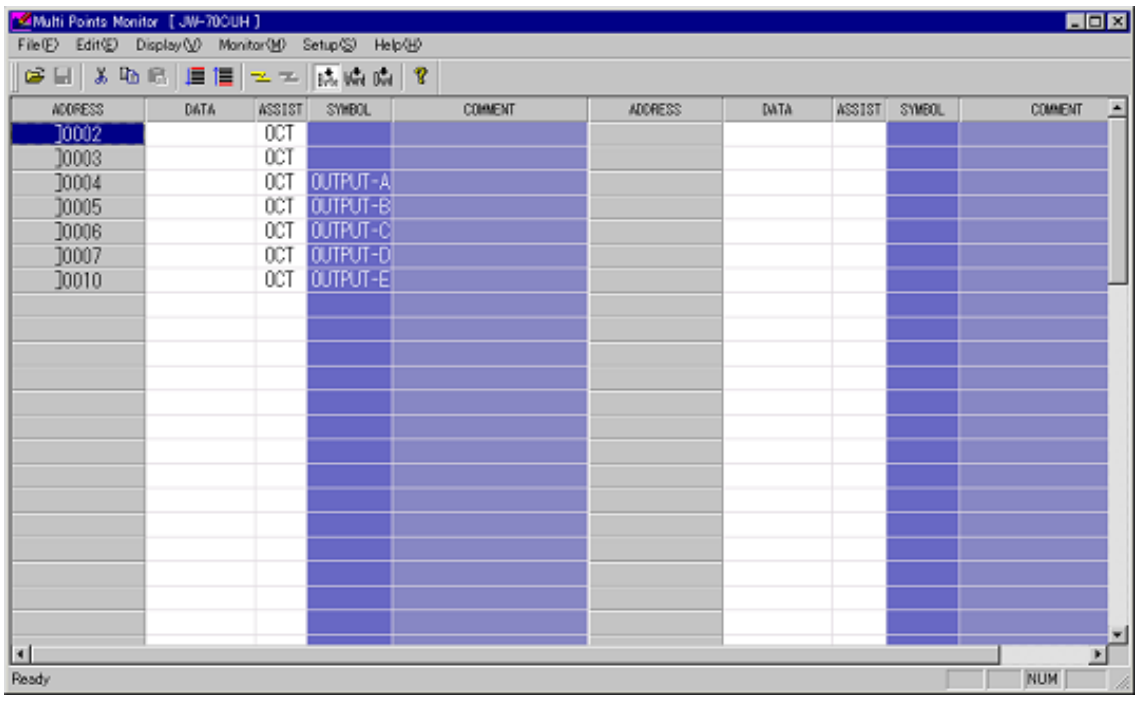
Item	Content
Address	Register the address to be monitored. ●**Input method** ・You can input the address to be monitored directly in the address cell. ・Right-click the address to be monitored in each of the Program:Ladder/System/Data/Symbol windows of JW-100SP. In the short cut menu, select [Send]-[Multipoints Monitor]. ⇒ Refer to the Sample Operation 1. ・Select the cell including the address to be monitored in the Program:Ladder window of JW-100SP, and select [Tool]-[Multipoints Monitor] in the menu bar. ⇒ Refer to the Sample Operation 2.
Data	Data items are renewed by communicating with the PC, and following the assigned monitor type at each line.You can modify the current value of the register, set/ reset of the timer・counter, and set/ reset of the relay. ●**Modify data of register** If you double-click the cell monitoring the register or select the cell and push the [Enter] key, "data item will change to the input mode. If you input the [Enter] key after inputting an optional numerical value at the input mode, you can change data. During the monitoring, you can also change data of the PC at the same time . ●**Set/reset of the relay** if you click on the right side of the mouse on the line monitoring the relay, the short cut menu that carries set/reset as their items will be displayed. If you select set/reset by this menu, you can set/reset the relay.

(To next page)

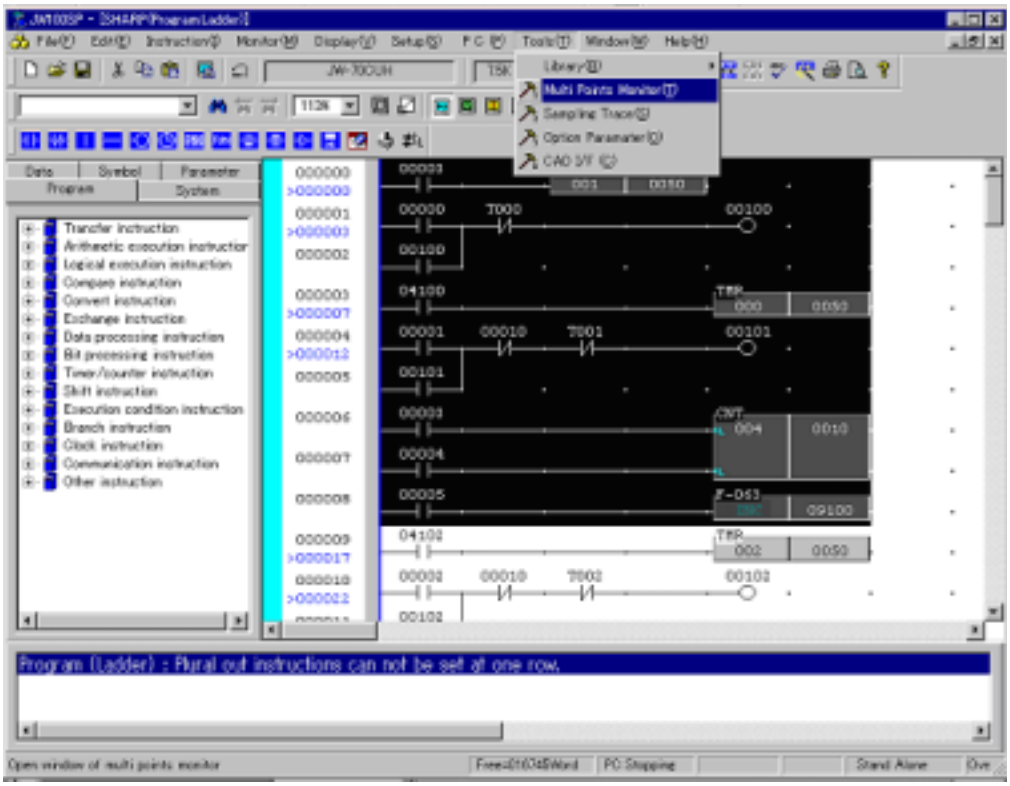
Item	Content
Supplement	Change the display type of the register, and set/reset the timer /counter contact. ●**Changing the display type of the register** Right-click the cell of the register address, and select the display type in the short cut menu. The numerical value of the data cell of the register address is displayed in the specified display form. ・You can select the display type of the system memory from binary notation/octal notation/decimal notation/decimal notation (with a plus/minus sign)/hexadecimal notation, or ASCII. ●**Set/reset of the timer /counter contact** If you right-click the cell monitoring the timer counter, the short cut menu that carries set/reset as their items will be displayed. If you select set/reset in this menu, you can set/reset the timer /counter.
Symbol	Displayed when the symbol/comment is setup at the register data.
Comment	

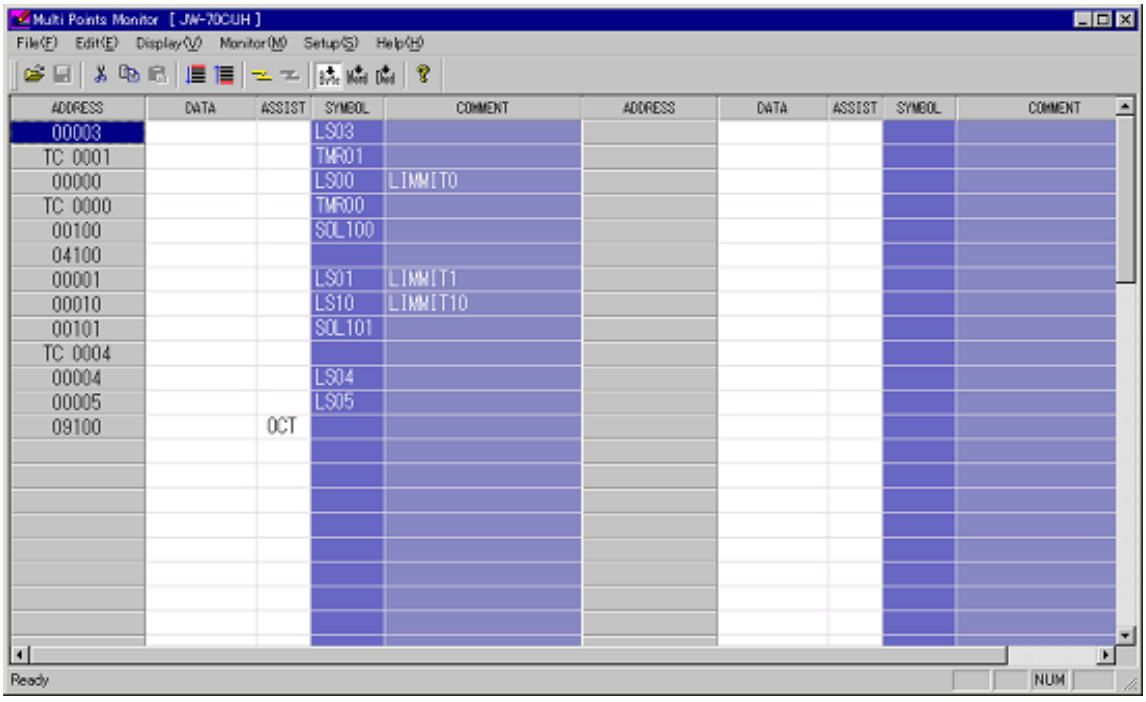
・**Sample Operation 1** (To send from the data memory window to multipoints monitor)
If you right-click the address to be monitored in the Data Memory window of JW-100SP and select [Send]-[Multipoints Monitor], the address will be displayed in the multipoints monitor.





· **Sample Operation 2** (To start with the menu bar of the Program:Ladder window)


Multi Points Monitor
Sampling Trace
Option Parameter
CAD I/F
Program (Ladder) : Plural out instructions can not be set at one row.



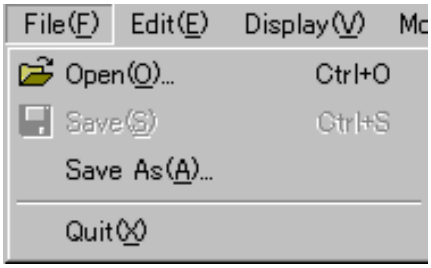
[2] Menu operation

The menu operation of the [Multipoints Monitor] window (cf. page 8-8) is explained.

(1) Menu bar

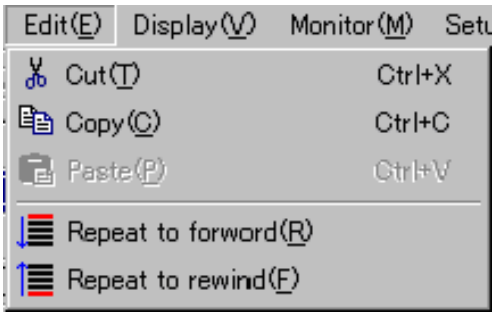
File(F)	Edit(E)	Display(V)	Monitor(M)	Setup(S)	Help(H)
(Refer to:) 8-11	8-12	8-13	8-13	8-13	8-14

■ [File] menu

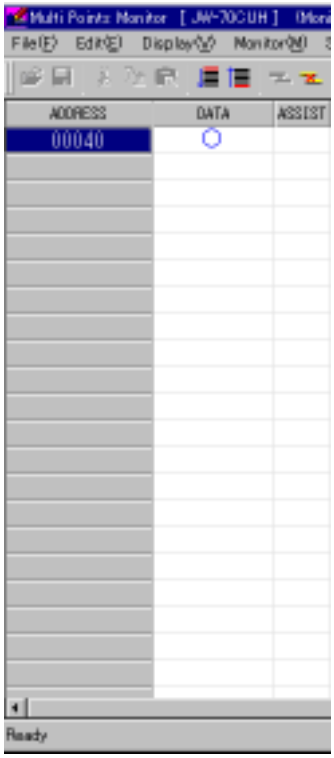


Item	Content
Open	Open an existing file(*.mon)
Save	Overwrite and save the current file.
Save As	Save the address registered in the [Multipoints Monitor] window, specifying the filename and the folder.
Quit	Close the [Multipoints Monitor] window. Note: Addresses that has been added, modified, or deleted after the previous [Save] or [Save As] is not saved.

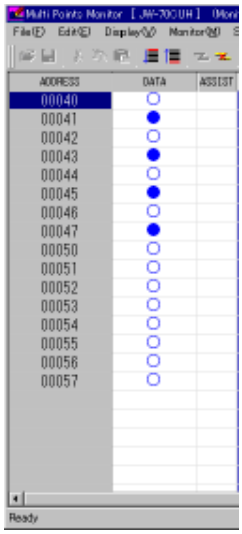
■ [Edit] menu



Item	Content	
Cut	Cut the selected area of the address cell, and save it in the clipboard.	
Copy	Copy the selected area of the address cell, and save it in the clipboard.	
Paste	Paste the data saved in the clipboard.	
Repeat to forword	Register the 15 downward consecutive addresses from the selected cell.	⇒See below.
Repeat to rewind	Register the 15 upward consecutive addresses from the selected cell.	

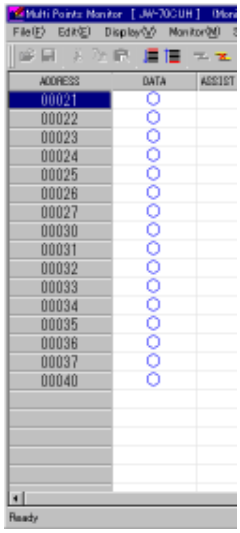


Execute [Downward sequence].



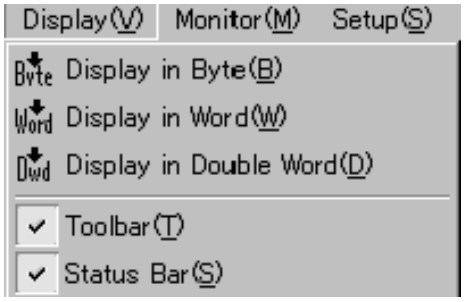
(After executing [Downward sequence])

Execute [Upward sequence].



(After executing [Upward sequence])

■ [Display] menu

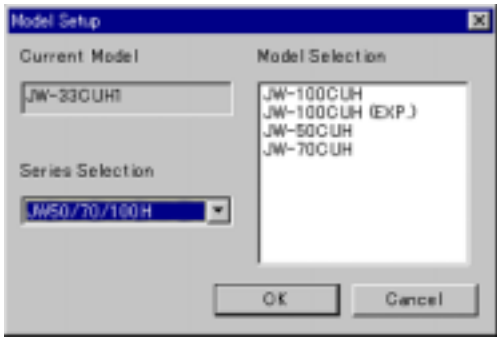
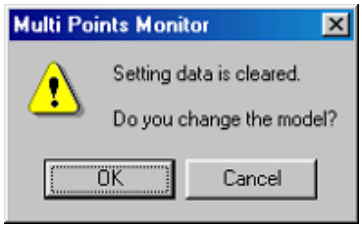


Item	Content
Displays in Byte	Display the value of system memory, register address, or timer /counter by bytes.
Displays in Word	Display the value of system memory, register address, or timer /counter by words.
Displays in Double Word	Display the value of system memory, register address, or timer /counter by double words.
Tool Bar	Select ON/OFF of the display of the tool bar.
Status Bar	Select ON/OFF of the display of the status bar.

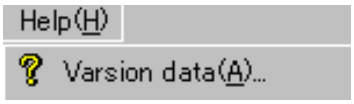
■ [Monitor] menu

Item	Content
Start Monitoring	Start monitoring
Stop Monitoring	Stop monitoring

■ [Setup] menu

Item	Content
Model setup	Define the model name of PC to be monitored.  ・If you start by selecting [Tool]-[Multipoints Monitor] or [Send]-[Multipoints Monitor] in JW-100SP, you cannot change the model. (It will be the model in operation with JW-100SP.) ・Registered addresses are all deleted. 

■ **[Help] menu**



Item	Content
Version data	Display the version of the multipoints monitor.

(2) Tool bar

(See page)

◎Open Same as [File]-[Open] (8-11)

◎Save Same as [File]-[Save] (8-11)

◎Cut Same as [Edit]-[Cut] (8-12)

◎Copy Same as [Edit]-[Copy] (8-12)

◎Paste Same as [Edit]-[Paste] (8-12)

◎Repeat to forword Same as [Edit]-[Downward sequence] (8-12)

◎Repeat to rewind Same as [Edit]-[Upward sequence] (8-12)

◎Start Monitoring Same as [Monitor]-[Start Monitoring] (8-13)

◎Stop Monitoring Same as [Monitor]-[Stop Monitoring] (8-13)

◎Displays in Byte Same as [Display]-[Displays in Byte] (8-13)

◎Displays in Word Same as [Display]-[Displays in Word] (8-13)

◎Displays in Double Word Same as [Display]-[Displays in Double Word] (8-13)

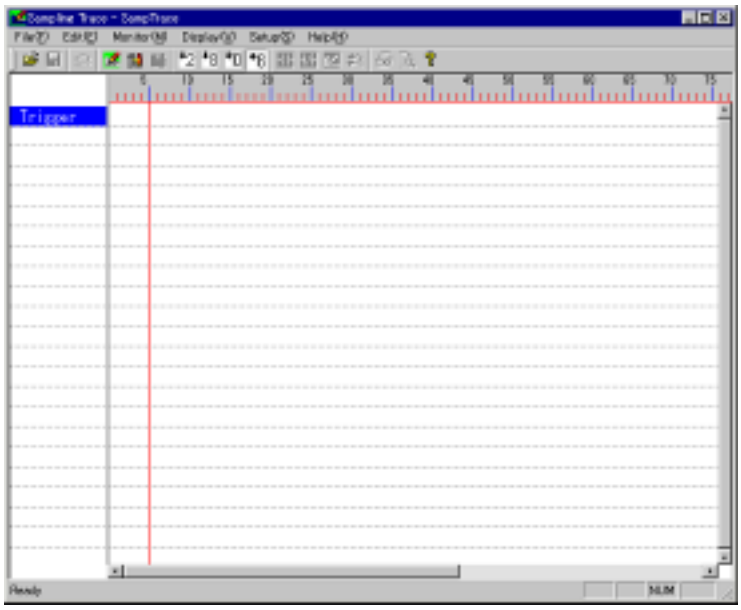
◎Version Information Same as [Help]-[Version Data] (above)

(3) Status bar

Display one-line help when a menu or toolbar icon is selected.

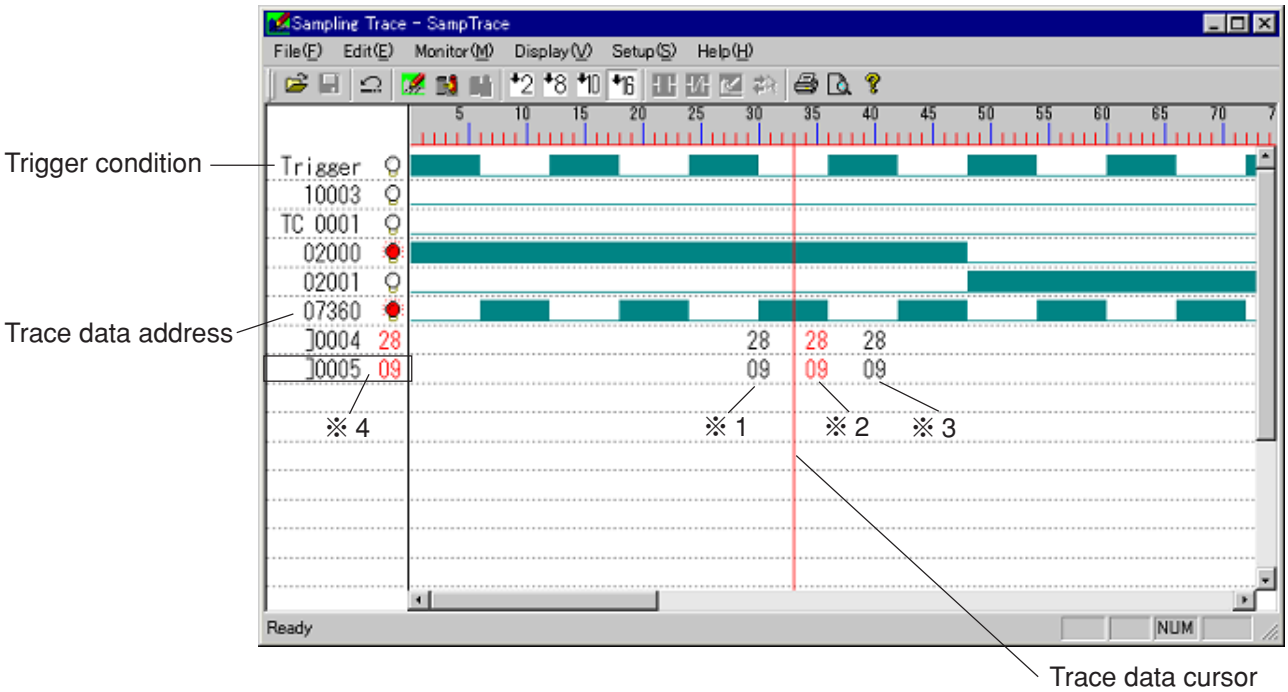
8-3 Sampling Trace

Sampling trace displays data in PC (e.g. ON/OFF information of relay) in the form of time charts. You can also save or print the displayed data.



If you click [Monitor]-[Sampling Trace] (refer to page 8-20) according to the procedure of sampling trace on the next page, sampling trace will start.

(Display example)



※1 Data at the previous position of the trace data cursor

※2 Data at the position of the trace data cursor

※3 Data at the next position of the trace data cursor

You can change the display type of ※1 to ※3 to binary notation/octal notation/ decimal notation/hexadecimal notation.

※4 Situation at the position of the trace data cursor

・Relay: Display for ON, for OFF.

・Register: Display data in hexadecimal notation (fixed).

[1] Sampling Trace order

The order to execute sampling trace will be explained.

1. Setup PC model

・Setup the compatible PC model by the [Setup]-[Select PC Model] of the menu bar.

・If you start sampling trace in JW-100SP, you cannot change models. (It will be the model in operation with JW-100SP.)

2. Setup communication

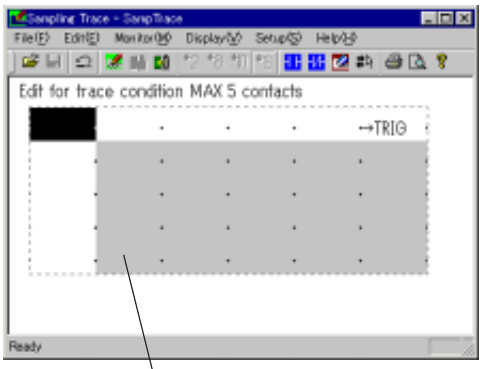
Set up communication by selecting [Setup]-[Communication Setup] in the menu bar.

3. Create trigger condition

Edit the trigger condition by selecting [Edit]-[Trigger Condition] in the menu bar.

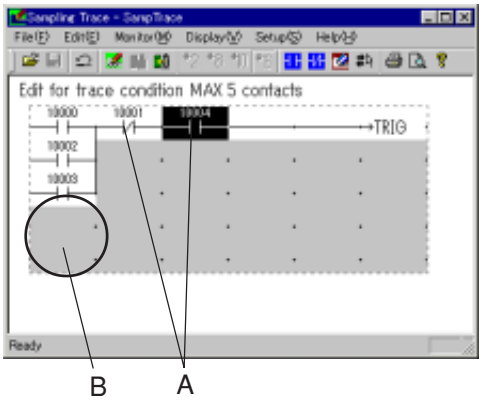
・Create a ladder program to be the trigger condition. You do not have to create a coil (OUT instruction).

・The ladder program that can be the trigger condition has maximum five contacts. You cannot input ladder mnemonics in the highlighted area below.

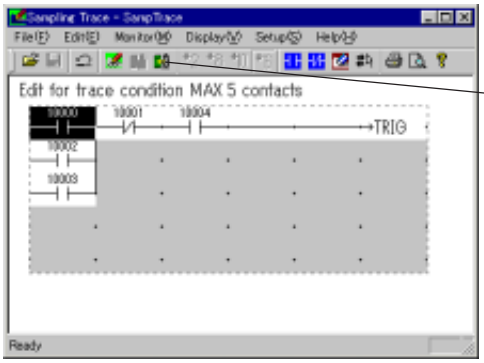


You cannot input ladder mnemonics in the cell of the highlighted area.

(Program Example)



When the ladder mnemonic of A is input, the B cell is highlighted.



Switch to the Sampling Condition window.

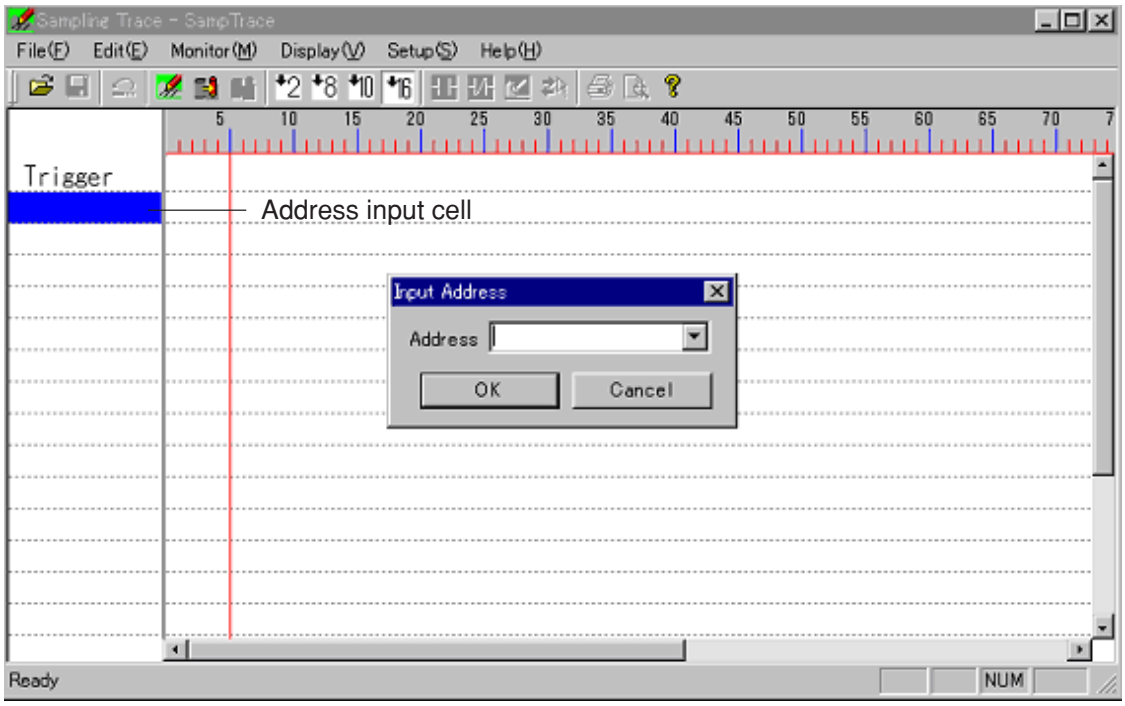
・Click [Switch to the Sampling Condition window] in the tool bar.

4. Setup of trace condition

Set up trace memory file, trace memory capacity, sampling frequency, and trigger mode by selecting [Setup]-[Trace Condition Setup].

5. Setup of trace data

Register the address to be traced in the input module of trace data address.

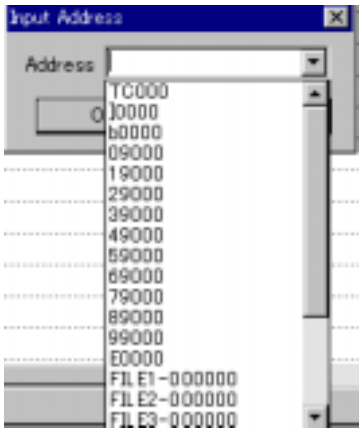


● **Input of trace data address**

If you select an address input cell and push the [Enter] key, if you double-click a cell, or if you right-click a cell and select [Input/modify] in the popup menu, the [Input Address] dialog box will be displayed.

Input the address to be traced in the [Address] area in the [Input Address] dialog box.

If you click ▼ on the right of the [Address] area, you can select a register address in the list.

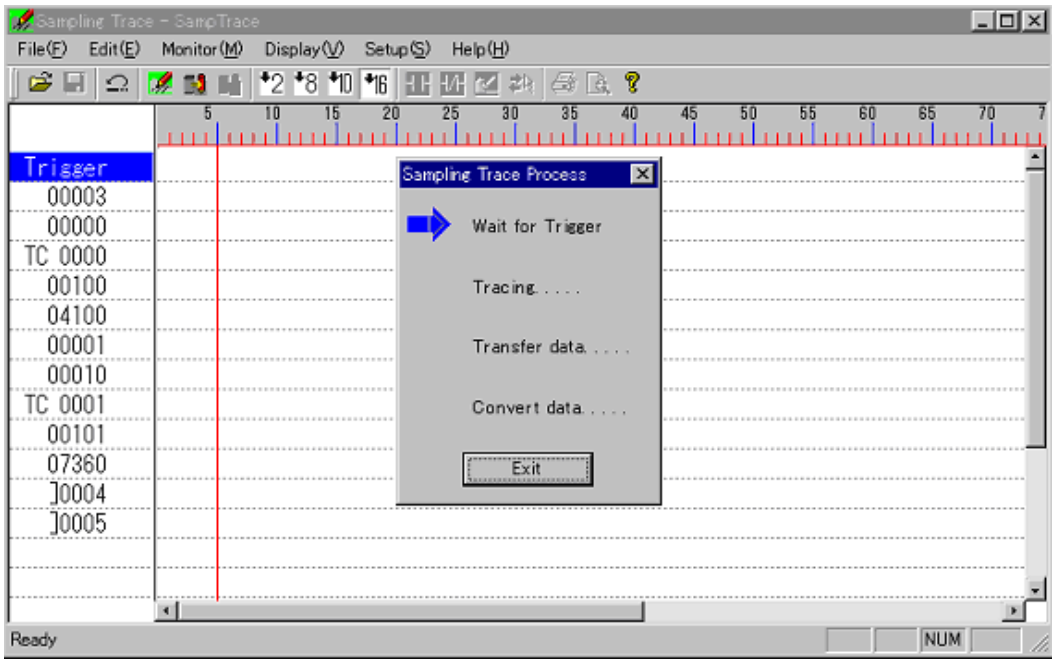


● **Deleting trace data address**

To delete the address, select the cell containing the address you want to delete and push the [Delete] key, or right-click the cell and select [Delete] in the popup menu.

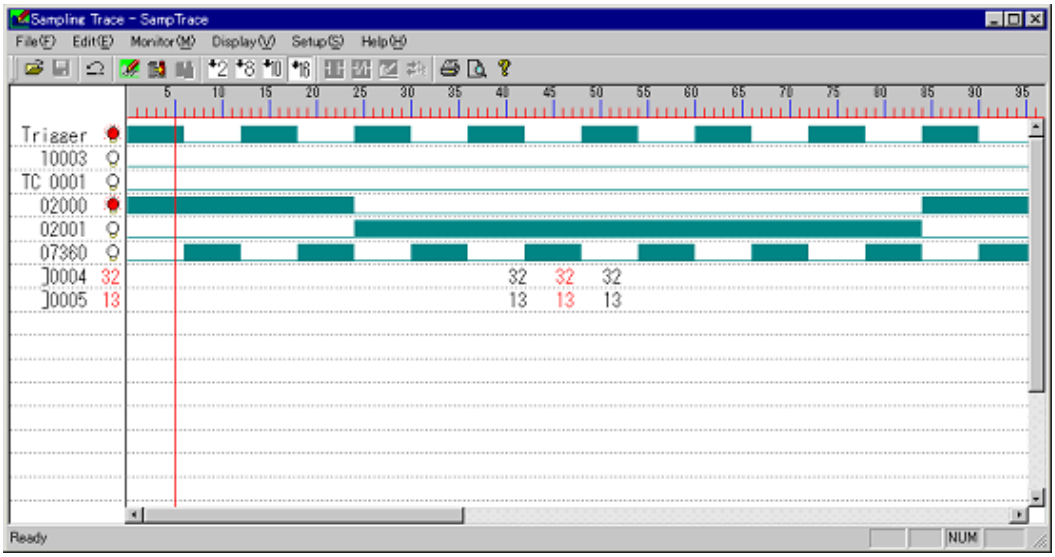
6. Monitor Start

If you click [Monitor]-[Sampling Trace] in the menu bar, the [Sampling Trace Process] dialog box will be displayed. If the trigger condition is not satisfied at this time, an arrow points “Wait for trigger” in the dialog box. This state remains until the trigger condition is satisfied.



· When the trigger condition is satisfied, the arrow moves [Tracing]→[Transfer data]→[Convert data] in the [Sampling Trace Process] dialog box. When the sampling trace processing is completed, sampling data is displayed in the display area.

(Program Example)

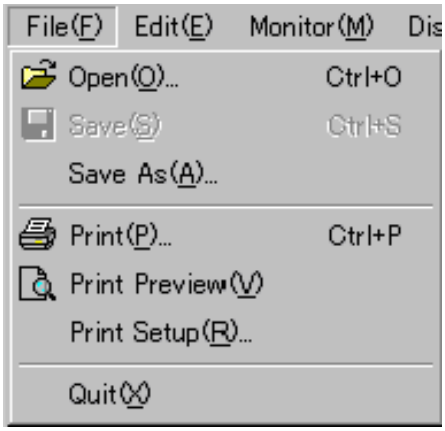


[2] Menu of the [Sampling Trace] window

This subsection explains menu operation of the [Sampling Trace] window (See page 8-15).

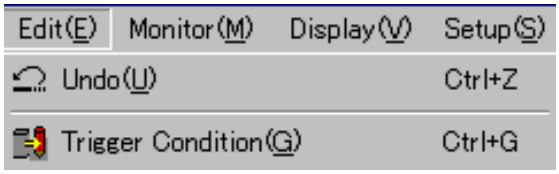
(1) Menu bar

■ [File] menu



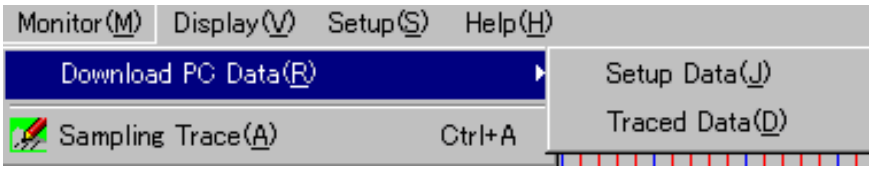
Item	Content
Open	Open an existing file(*.smp) of trace data of sampling trace, trigger condition, or trace condition. ・Sampling trace will be executed for the model corresponding to the file you open.
Save	Save trace data of sampling trace, trigger condition, or trace condition without changing the name or folder. ・You cannot select if a file is not open.
Save As	Save trace data of sampling trace, trigger condition, or trace condition, specifying the name or folder.
Print	Print trace data.
Print Preview	Display the print image.
Print Setup	Select and set up the printer.
Quit	Close sampling trace.

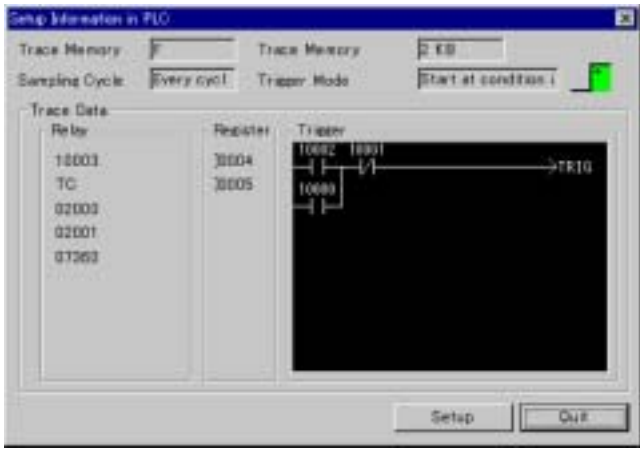
■ [Edit] menu



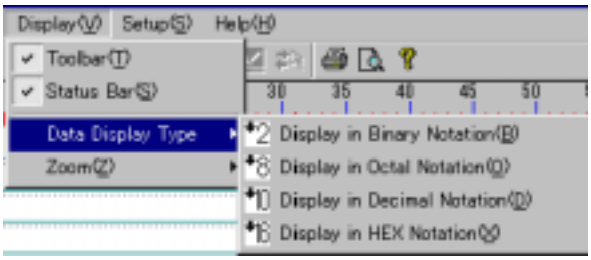
Item	Content
Undo	Disable the operation you have just done.
Trigger Condition	Set up the trigger condition. (Refer to page 8-16)

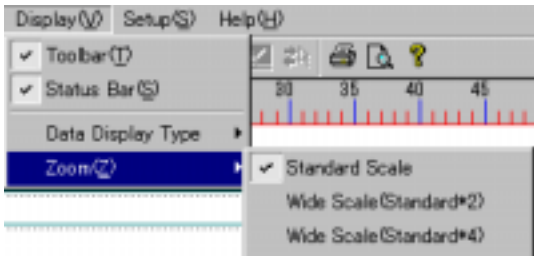
■ [Monitor] menu



Item		Content
Download PC Data	Setup Data	Read the trace condition and trigger condition set in the PC.  ・If you click [Setup], trace data of sampling trace, trace condition, and trigger condition is set to the content read from the PC.
	Traced Data	Read sampling trace data saved in the file register of the PC.
Sampling Trace		Start tracing.

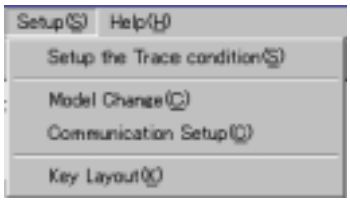
■ [Display] menu

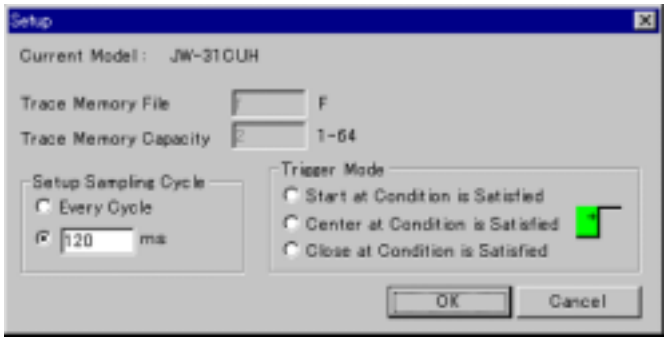




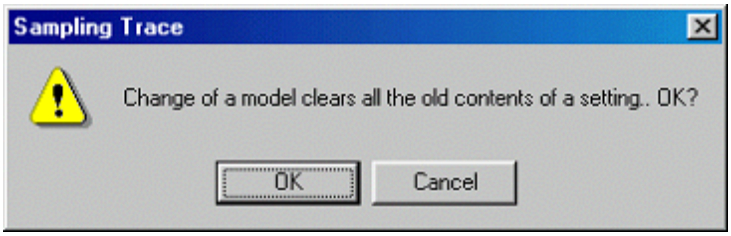
Item	Content
Tool bar	Select the display of tool bar (appear/disappear).
Status bar	Select the display of status bar (appear/disappear).
Data Display Type	Select the display type of the register value from binary notation/octal notation/ decimal notation/hexadecimal notation.
Zoom	Select the scale of the display area from standard/twice/four times.

■ [Setup] menu



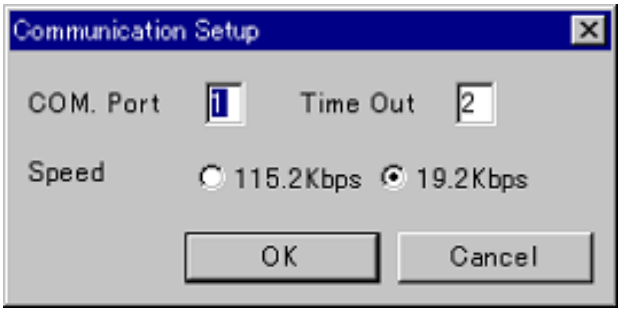
<table>
<tr><th>Item</th><th>Content</th></tr>
<tr><td>Setup the Trace condition</td><td>To set up sampling trace, click [Setup the Trace condition]. The [Setup] dialog box will be displayed.


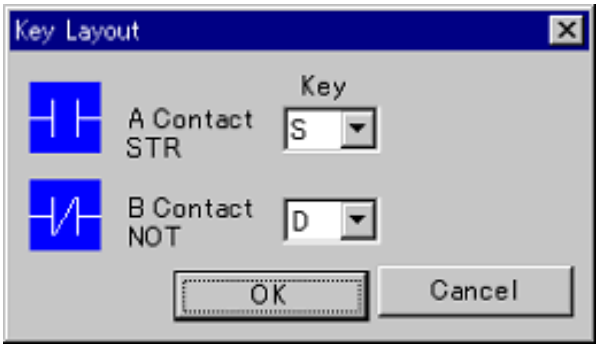
<table>
<tr><th>Setup item</th><th>Content</th></tr>
<tr><td>Trace Memory File</td><td>Select the file register number to save the sampled data. Use file F (2KB) in normal use.</td></tr>
<tr><td>Trace Memory Capacity</td><td>Define the capacity (KB) to use as trace memory from specified file register. The capacity is always 2KB when you use file F.</td></tr>
<tr><td>Setup Sampling Cycle</td><td>Define sampling frequency.
You can select [Every cycle] or [0 to 1000ms] in 10ms steps.</td></tr>
<tr><td>Trigger Mode</td><td>Select the trigger mode in sampling start.</td></tr>
</table>
</td></tr>
<tr><td>Model Change</td><td>Select the PC model name to execute sampling trace.

・If you start by selecting [Tool]-[Sampling Trace] or [Send]-[Sampling Trace] in JW-100SP, you cannot change the model.
(It will be the model in operation with JW-100SP.)


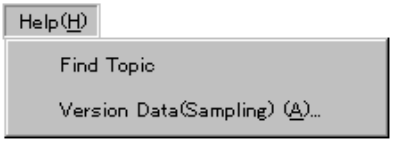
・Setup contents are all deleted.</td></tr>
</table>

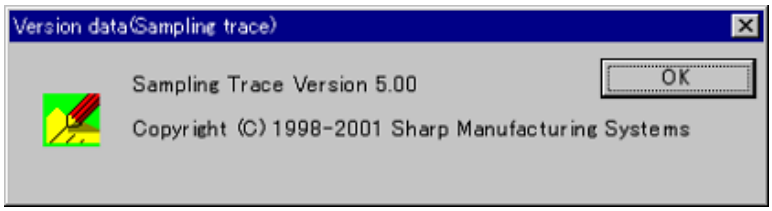
↓
To the next page

<table>
<tr><th>Item</th><th>Content</th></tr>
<tr><td>Communication Setup</td><td>Set up communication between the personal computer and the PC.


<table>
<tr><th>Setup Item</th><th>Content</th></tr>
<tr><td>COM.Port</td><td>Select the communication port connected to the communication adapter(JW-100SA).</td></tr>
<tr><td>Time Out</td><td>Define the timeout duration of communication.</td></tr>
<tr><td>Speed</td><td>Select the communication speed.
・Communication speed is determined by model.</td></tr>
</table></td></tr>
<tr><td>Key Layout</td><td>Assign shortcut keys of ladder mnemonics (A contact and B contact) when creating trigger condition.

</td></tr>
</table>

■ [Help] menu



<table>
<tr><th>Item</th><th>Content</th></tr>
<tr><td>Version Data (Sampling Trace)</td><td>Display the version of sampling trace.

</td></tr>
</table>

(2) Tool bar

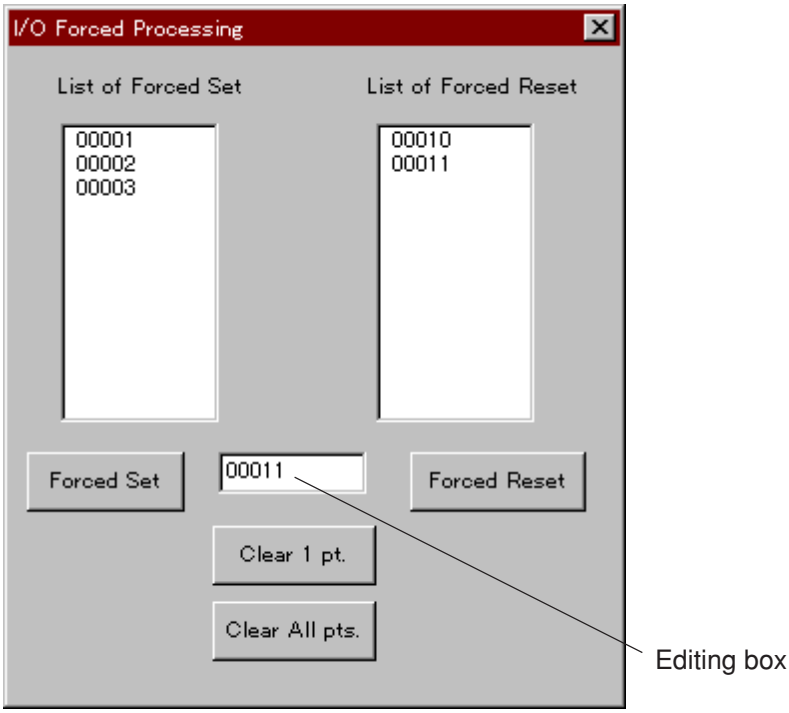
← When sampling data is displayed

← When trigger condition is displayed

		(See page)
	◎Open	Same as [File]-[Open] (8-19)
	◎Save	Same as [File]-[Save] (8-19)
	◎Undo	Same as [Edit]-[Undo] (8-19)
	◎Execute Sampling Trace	Same as [Monitor]-[Sampling Trace] (8-20)
	◎Switch to Trigger Condition Window	Same as [Edit]-[Trigger Condition] (8-19)
	◎Switch to Sampling Condition Window	Switch to sampling condition window
	◎Displays in Binary Notation	Same as [Display]-[Data Display Type]-[Displays in Binary Notation] (8-20)
	◎Displays in Octal Notation	Same as [Display]-[Data Display Type]-[Displays in Octal Notation] (8-20)
	◎Displays in Decimal Notation	Same as [Display]-[Data Display Type]-[Displays in Decimal Notation] (8-20)
	◎Displays in Hexa Notation	Same as [Display]-[Data Display Type]-[Displays in Hexa Notation] (8-20)
	◎A Contact	Used when inputting A contact in the trigger condition setup window.
	◎B Contact	Used when inputting B contact in the trigger condition setup window.
	◎Eraser	Used when erasing the circuit (cell unit).
	◎Change Cursor Type	Change the instruction cursor to the arrow cursor in the trigger condition setup window.
	◎Print	Same as [File]-[Print] (8-19)
	◎Print Preview	Same as [File]-[Print Preview] (8-19)
	◎Version Information	Same as [Help]-[Version Data (Sampling)] (8-22)

8-4 I/O Forced Processing (Main/Program/System/Data/Parameter：except JW10 model)

Turn ON/OFF the rely of the PC by force.
If you click [Monitor]-[I/O Forced Processing] of the menu bar of each window, the [I/O Forced Processing] dialog box will be displayed.



(Display example)

Execute the force treatment of the relay address that is displayed in the central editing box.
It is displayed in the central editing box by“inputting direct address”or by“clicking the mouse on the relay address that is displayed at the list of forced set/list of forced reset.”

Button	Function
Forced Set	Execute the I/O force set of the relay address that is assigned in the editing box. If the force set is executed normally, the relay address will be displayed in the list of forced set.
Forced Reset	Execute the I/O force reset of the relay address that is assigned in the editing box. If the force reset is executed normally, the relay address will be displayed in the list of forced reset.
Cancel 1 pt.	Release the I/O forced processing of the relay address that is assigned in the editing box. If the force release is normally executed, it is deleted from the list of forced set/reset.
Cancel All pts.	Release the whole relay addresses that are either force set /force reset from the I/O forced processing.

8-5 Edit Program while Monitoring (Program)

You can edit program of the PC while monitoring. You can modify the part of a program of the PC faster by using this function, it is useful, for example, at the time of debug during the test running.

		Ladder Monitor		Mnemonic Monitor	
		PC Stopping	PC Running	PC Stopping	PC Running
Change address or values specified		※	※	Impossible	Impossible
Edit Circuit		※	※	Impossible	Impossible
Transfer PC (Program)	Read	Possible	Possible	Possible	Possible
	Write	Possible	Impossible	Possible	Impossible

※ "Change address or values specified" and "Edit Circuit" at the ladder monitor.

Model name	W16/W51/W100	W70 H/W100H JW series
Change address or values specified	Possible	Possible
Edit Circuit	Impossible*	Possible

* Due to limited processing capacity, the W16/W51/W100 series may stop operating if you try to modify the circuits during operation. Therefore, these models do not allow circuit modification during operation.

■ **Precautions for editing circuits during operation**

Modifying the circuits of a PLC while it is operating may cause serious accidents involving the machines or facilities which are controlled by this PLC due to missing program steps or inappropriate operation. Please be extremely careful when the PLC is operating.

Special precautions

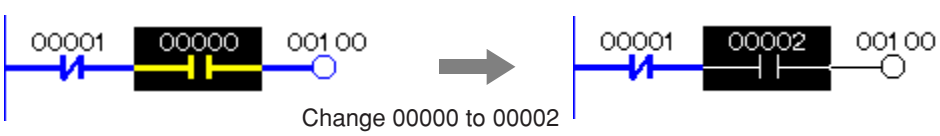
- Do not modify the program for a PLC that is controlling equipment which can directly cause damage to property or adversely affect human life.
- Do not modify the program while operating if the scan time is longer than 100 mS. (In some circuit editing conditions the control module may temporarily halt operation.)
- Review the circuit and the address where you will insert a program step thoroughly. Simulate the operation of the new program using another device before making the actual change.

[1] Change address or values specified

- You can modify the contact and the coil relay number of the PC program while monitoring.
- It can be executed at the [Program：Ladder] window.

● **Operation order (Example)**

1. Activate the [Program ： Ladder] window.
2. Read program memory from the PC by the [PC Transfer]-[Read] command.
   You can also write program created at JW-100SP to the program memory of the PC by the [PC Transfer]-[Write] command.
3. Execute ladder monitor by the [Monitor]-[Start Monitoring] command.
4. After moving the cell cursor to the contact whose relay number is to be modified, or to the coil , press [Enter] key to make it to the address input mode.
5. If you press [Enter] key after inputting the relay number that is to be modified, the modification of the relay number will be completed.



Change 00000 to 00002

[2] Edit Circuit

・You can change, insert (add), delete the program (ladder circuit) of the PC during the ladder monitoring.

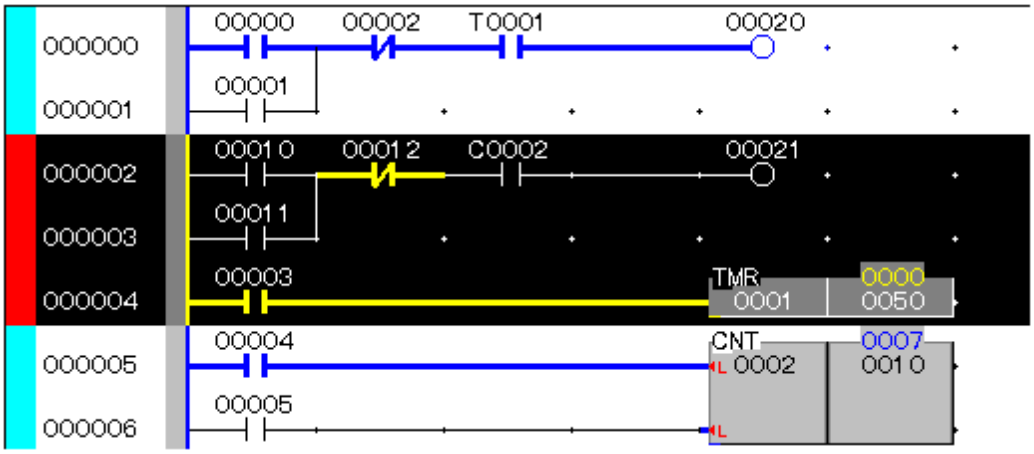
● **Operation order**

1. Activate the [Program：Ladder] window
2. Read program memory from the PC by the [PC Transfer]-[Read] command.
   You can also write program created at JW-100SP to the program memory of the PC by the [PC Transfer]-[Write] command.
3. Execute ladder monitor by the [Monitor]-[Start Monitoring] command.
4. In case of changing the circuit → (1) Change circuit (to the following heads)
   In case of inserting the circuit → (2) Insert circuit (to the page 8-28)
   In case of deleting the circuit → (3) Delete circuit (to the page 8-30)

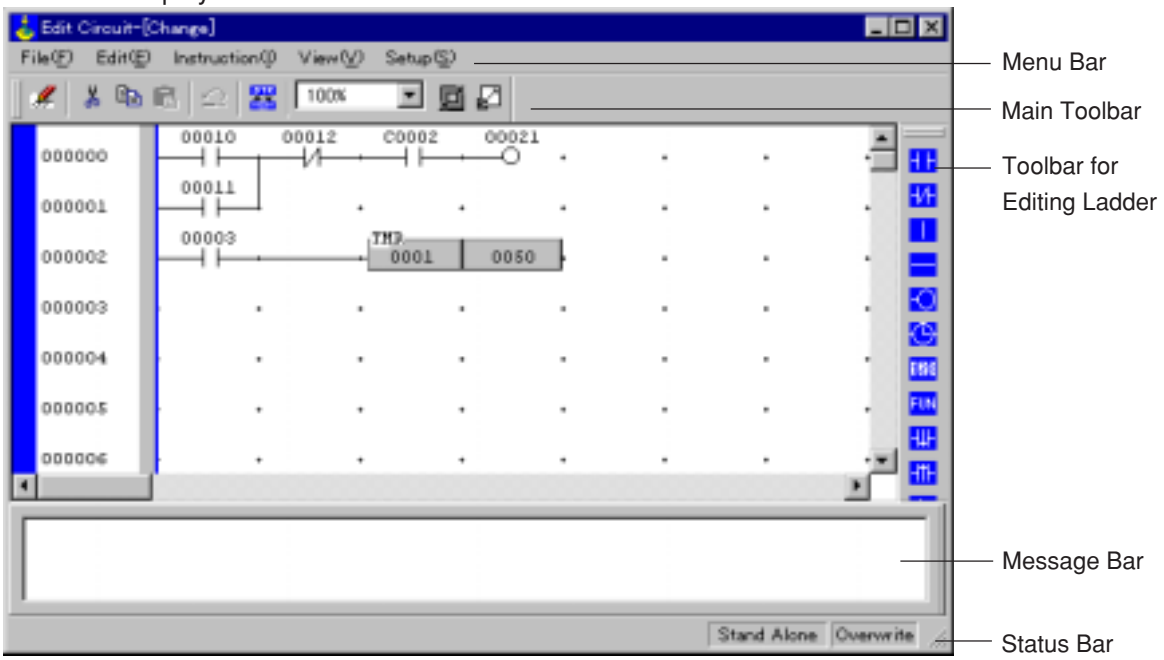
(1) Change circuit

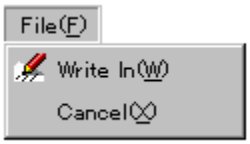
You can modify the assigned circuit (network). (You can modify several continuous circuits in batch.)

5. Select the line number of the circuit that is to be changed.



6. Click [Monitor]-[Edit Circuit]-[Change].
   ⇒ The [Edit Circuit (change)] window will be opened, and the selected ladder circuit will be displayed.



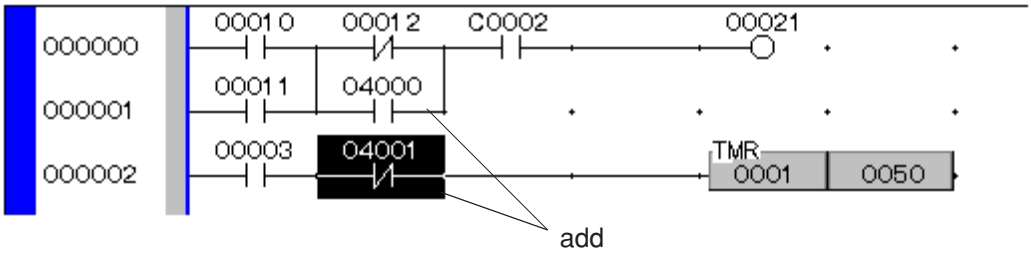


—— Write the changed circuit to the PC. (same for the button also)

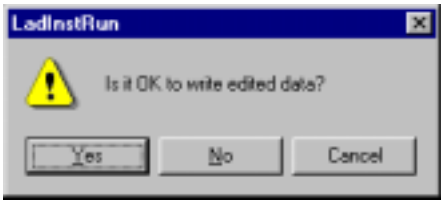
—— Cancel "Edit Circuit"

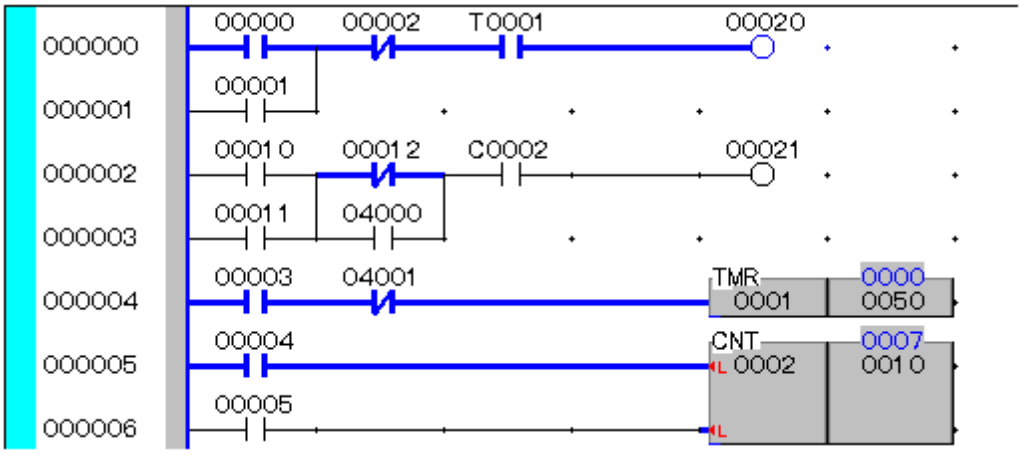
The other commands of the menu bar and the function of the toolbar are same as the [Program：Ladder] window, so refer to"Chapter 5 Menu Operation and Chapter 6 Program Edit."

7. Change the circuit as same as editing the program by the [Program：Ladder] window.



8. If you click [File]-[Write In], the dialog box confirming the"writing"will be displayed. Here, if you click [Yes], the edited circuit will be written in the PC, and it will turn back to the ladder monitor at the [Program：Ladder] window.

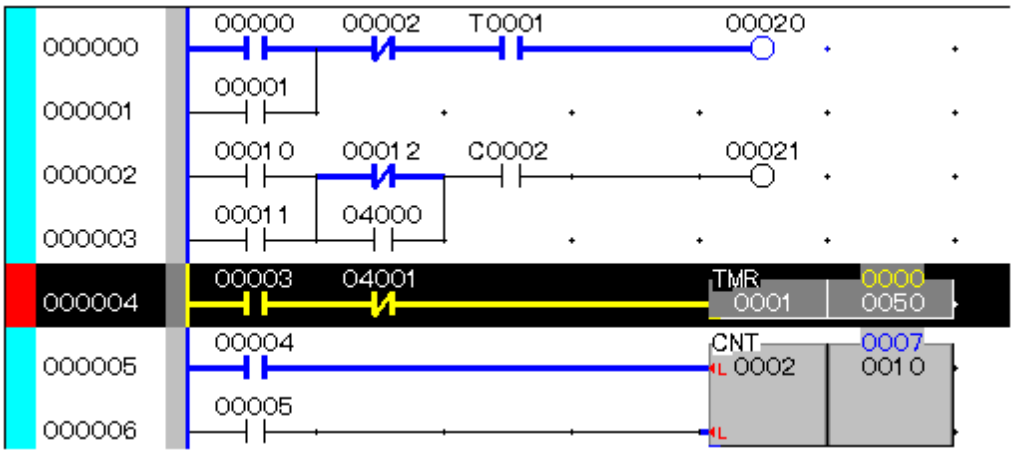




(2) Insert circuit

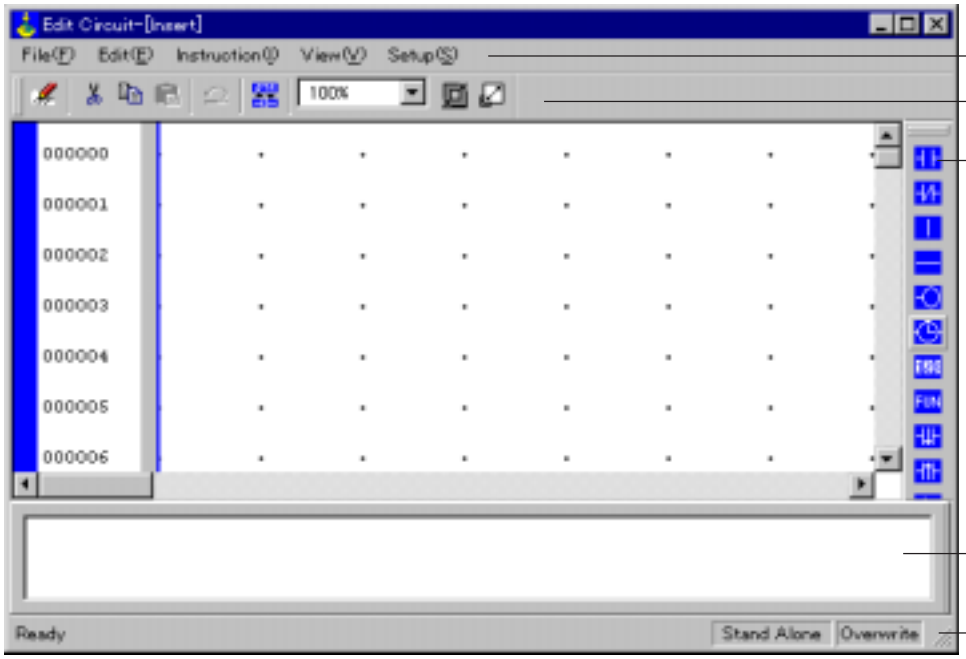
Create a new circuit, and insert it in the assigned position. (You can create several continuous circuits and insert them in batch.)

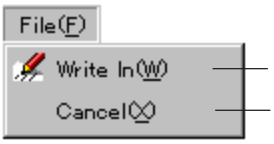
5. Select the line number of the circuit that is to be inserted. (The circuit that is to be created will be inserted in front of the selected Line.)



6. Click [Monitor]-[Edit Circuit]-[Insert]

⇒ The [Edit Circuit (Insert)] window will be opened. At this time, the ladder display area is being cleared out.



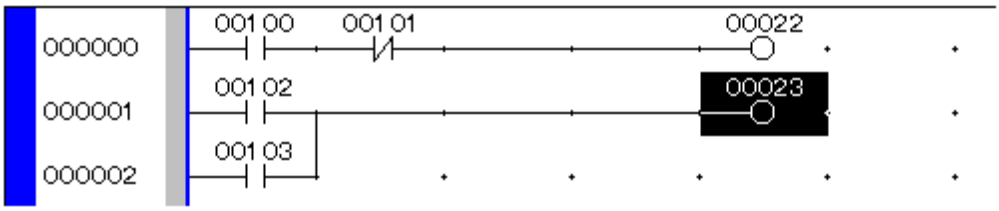


Write the modified circuit to the PC. (same for the button also)

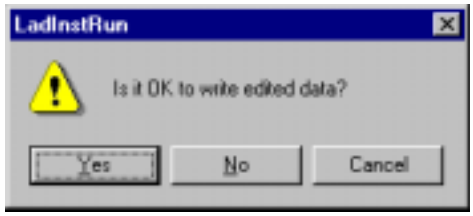
Cancel "Edit Circuit"

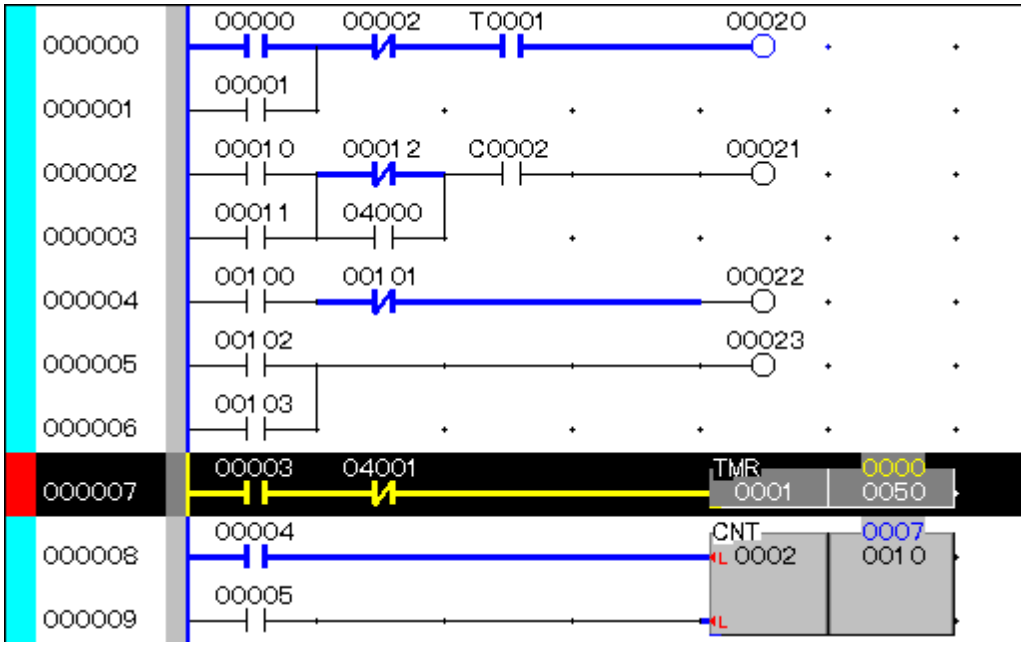
The other commands of the menu bar and the function of the toolbar are same as the [Program：Ladder] window, so refer to"Chapter 5 Menu Operation and Chapter 6 Program Edit."

7. Modify the circuit as same as editing the program by the [Program：Ladder] window.



8. If you click [File]-[Write In], the dialog box confirming the“writing”will be displayed. Here, if you click [Yes], the edited circuit will be written in the PC, and it will turn back to the ladder monitor at the [Program：Ladder] window.

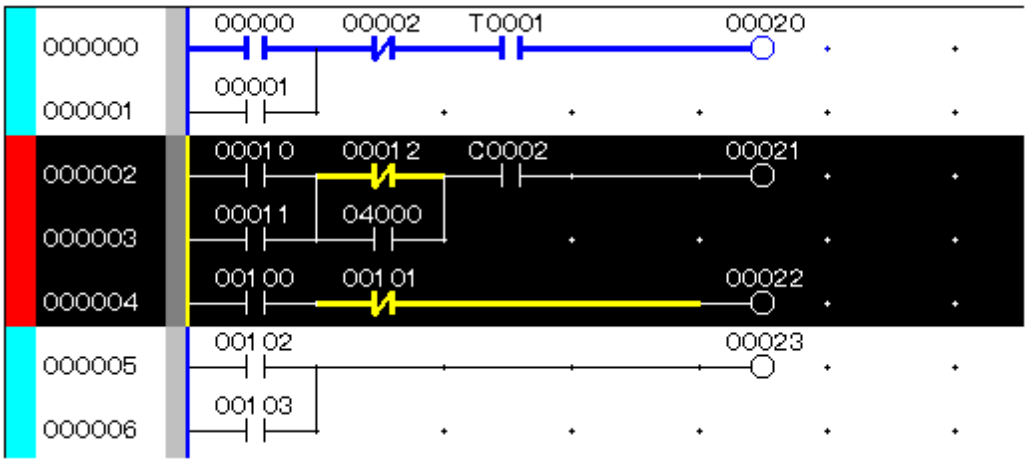




(3) Delete circuit

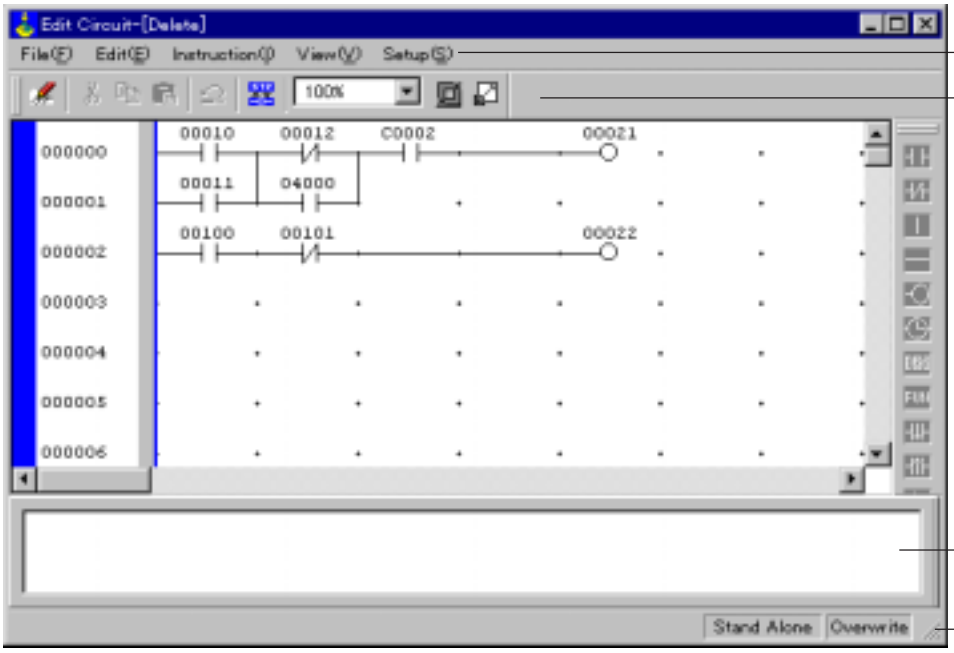
Delete the assigned circuit. (You can modify several continuous circuits in batch.)

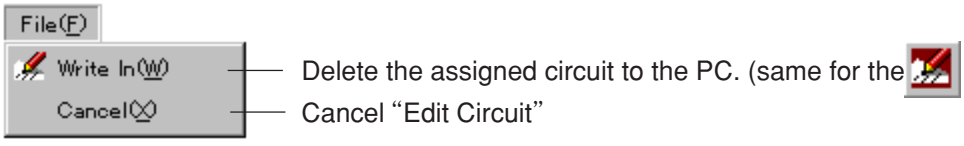
5. Select the line number of the circuit that is to be deleted.



6. Click [Monitor]-[Edit Circuit] - [Delete]

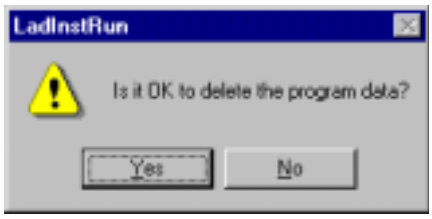
⇒ The [Edit Circuit (Delete)] window will be opened, and the selected ladder circuit will be displayed.

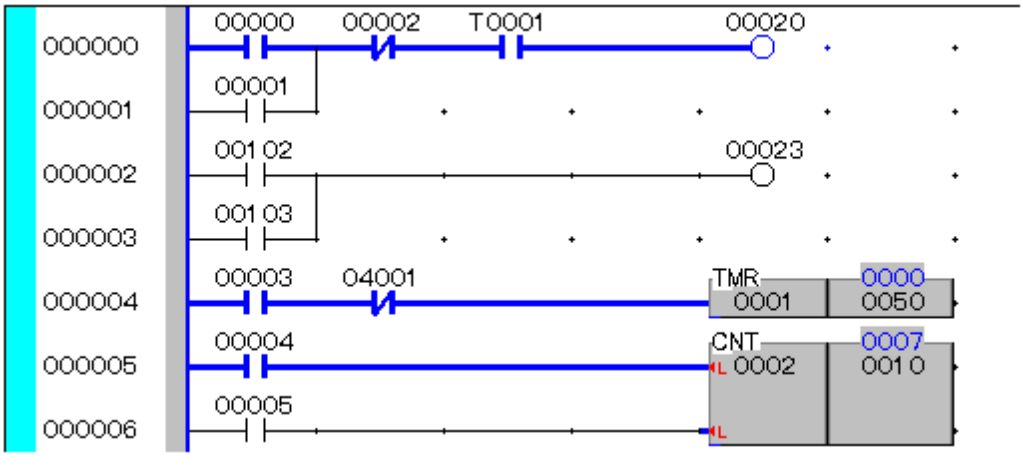




The other commands of the menu bar and the function of the toolbar are same as the [Program：Ladder] window, so refer to“Chapter 5 Menu Operation.”

7. If you click [File]-[Write In], the dialog box confirming the“deleting”will be displayed. Here, if you click [Yes], the edited circuit will be deleted from the PC, and it will turn back to the ladder monitor at the [Program：Ladder] window.



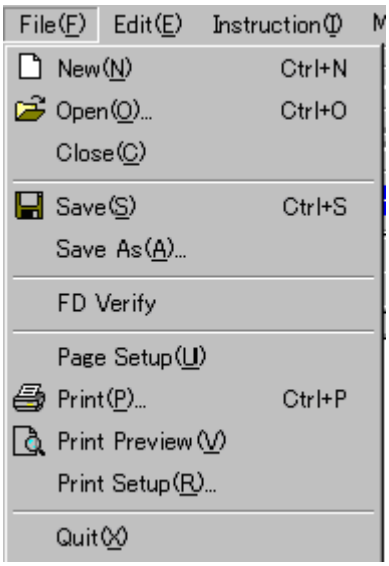


Chapter 9 Print

Print the content of the active window. To print, you operate [Page Setup]/[Print]/[Print Preview]/[Print Setup] of the [File] menu.

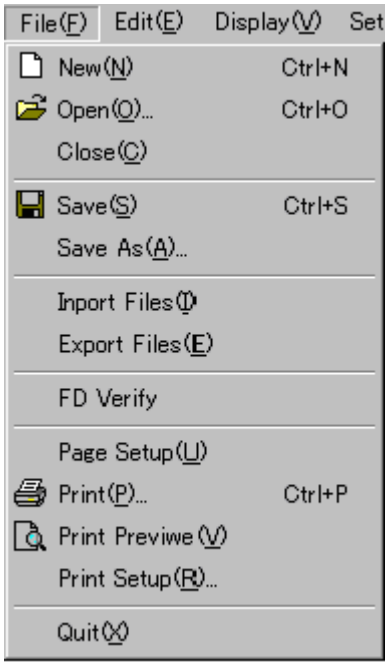
・Program /System /Parameter

(Details in pages)
9-3
9-22
9-20
9-18



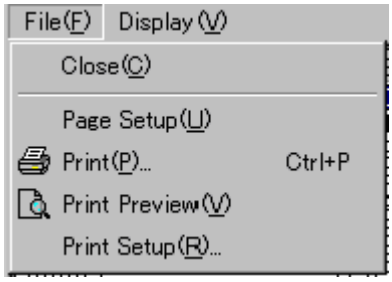
・Data /Symbol

(Details in pages)
9-3
9-22
9-20
9-18



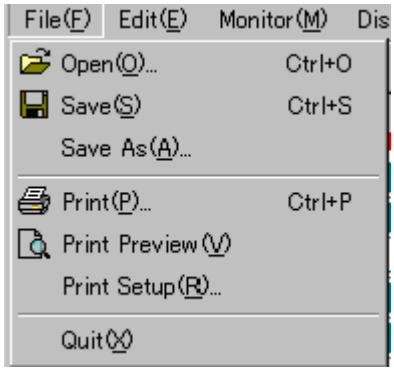
・Data List (program)

(Details in pages)
9-3
9-22
9-20
9-18



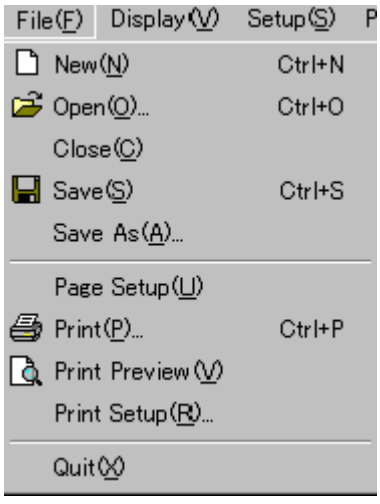
・Sampling Trace

(Details in pages)
9-22
9-20
9-18

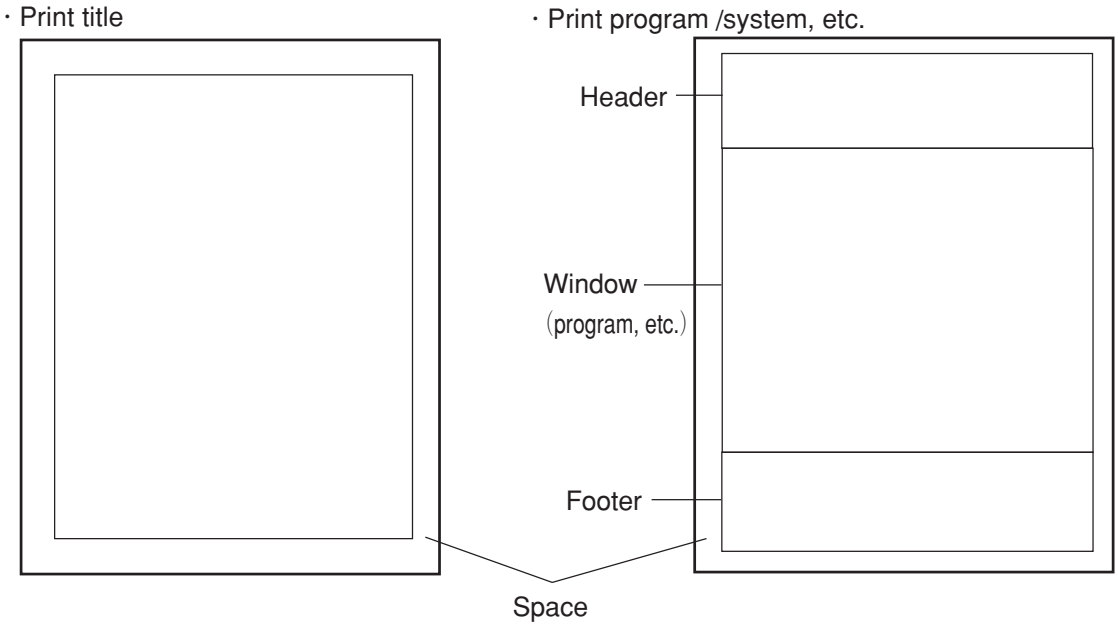


・Option Parameter

(Details in pages)
9-3
9-22
9-20
9-18



● Outline of "Print Setup"



Items of setup /operation	Reference items /pages
Yes /No for the title	Page Setup (9-1)
Content of the title	HF Editor (9-2)
Size /position of the title	Page Setup ([File] menu of HF editor：page 9-13)
Yes /No of the header /footer	Page Setup (9-1)
Content of the header /footer	HF Editor (9-2)
Size /position of the header /footer	Page Setup ([File] menu of HF editor：page 9-13)
Printing content of the window	Page Setup (9-1)
Space	Page Setup (9-1)
Selection /connection of the printer	Printer Setup (9-3)
Display while printing	Print Preview (9-4)
Print	Print (9-5)

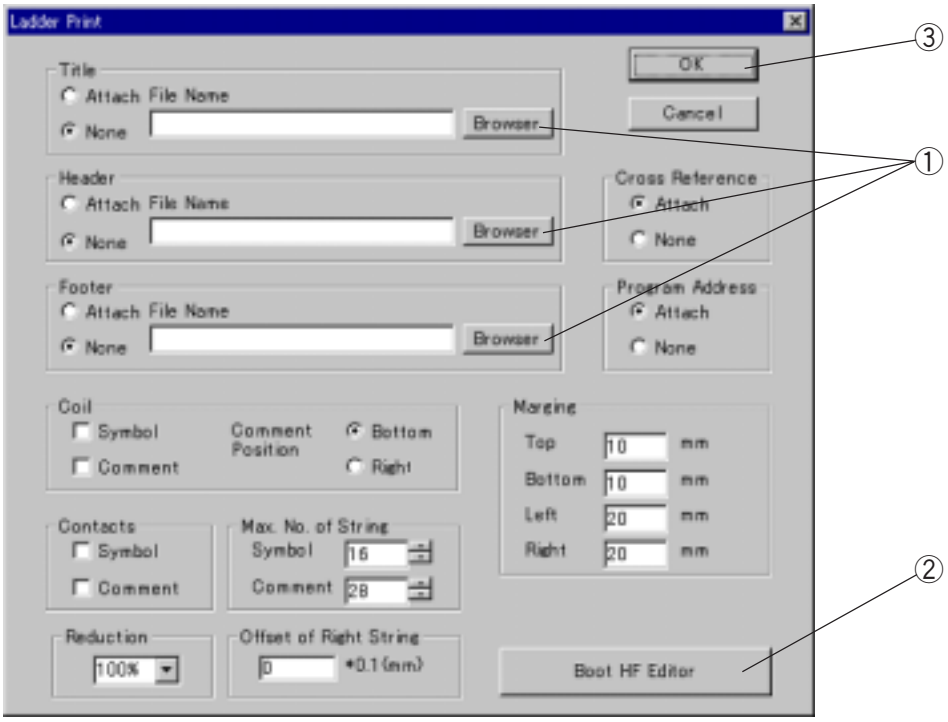
9-1 Page Setup (Program/System/Data/Symbol/Parameter/Option Parameter/Data List)

Setup the format of the page for printing.

If you click [Page Setup] by the [File] (page 9-1) menu of each window, the dialog box of each setup will be displayed.

[1] Setup Page of Program : Ladder

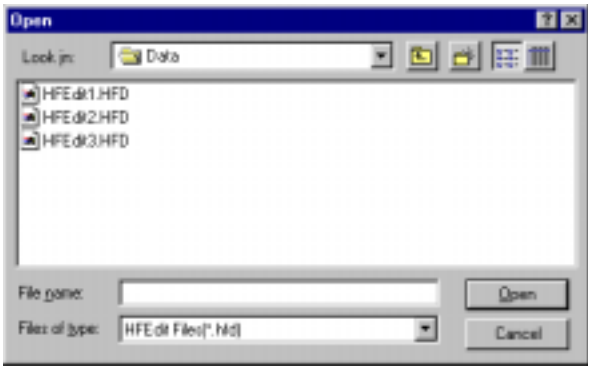
If you click [Page Setup] by the [File] menu of [Program : Ladder] window, the [Ladder Print] dialog box will be displayed.



Setup items	Content
Title	If you want to print the title, select "Attach," and if you don't want to print the title, select "None." Assign the file name if you select "Attach." ※
Header	For each page, select "Attach/None" (as explained above) in printing the header. Assign the file name if you select "Attach." ※
Footer	For each page, select "Attach/None" (as explained above) in printing the footer. Assign the file name if you select "Attach." ※
Coil	Assign whether you want to add or not add the symbol /comment to the coil, and select the printing position (bottom /right) of the comment.
Contact	Assign whether you want to add or not add the symbol/comment to the contact.
Zoom In/Out	Zoom in or out ladder image to be printed. ・You can select the rate from 50/75/100/150/200%.
Right Character Position Offset	Specify offset of position of right character such as cross reference or coil comment.
Max. No. of String	Setup the maximum character numbers when you add symbol/comment to the coil /contact. The setup area for the symbol is 0 to 16 characters, and for the comment it is 0 to 28 characters.
Cross Reference	Select "Attach/None" in adding the cross reference.
Program Address	Select "Attach/None" in adding the program address.
Margins	Setup spaces of top/bottom/left/right sides.
Boot HF Editor	Start-up "HF Editor" that creates title, header and footer.

※ By clicking [Reference] (number ① above) of each item, you can assign the file name by [Select File] dialog box (next page) at the title/header/footer.

● **[Select File] dialog box**



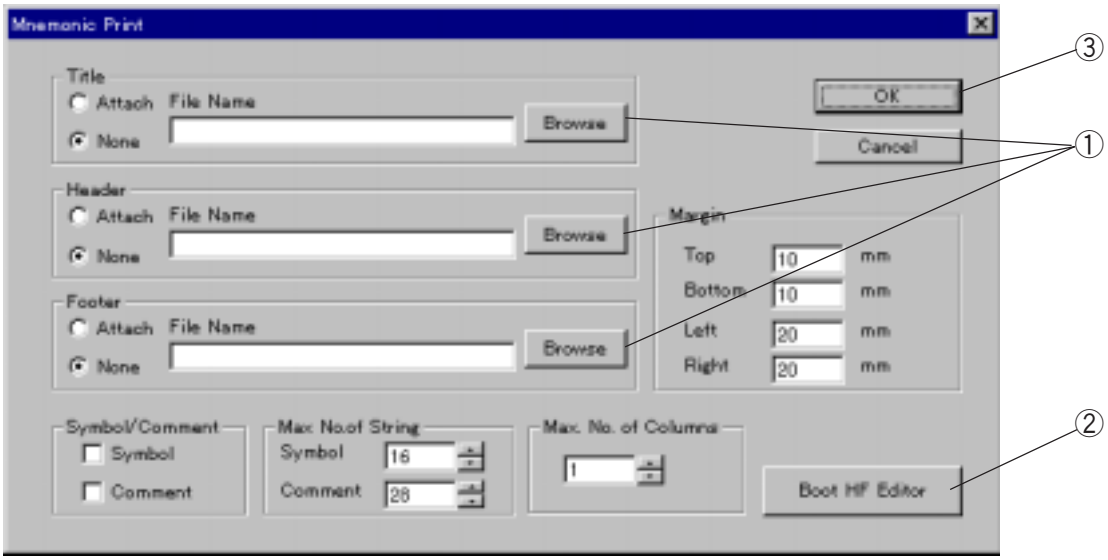
(Display example)

・Select the file name of title, header and footer.
The operation method is same as "■ Open."
Also the file for title/header/footer is created by clicking [Boot HF Editor] (number ② of the previous page) (⇒Refer to "9-2 HF Editor")

If you click [OK] (number 3 of the previous page) after setting up each item of the [Print Ladder] dialog box, the setup content will be registered.

[2] Setup Page of Program：Mnemonic

If you click [Page Setup] by the [File] menu (page 9-1) of program：mnemonic, the [Print Mnemonic] dialog box will be displayed.



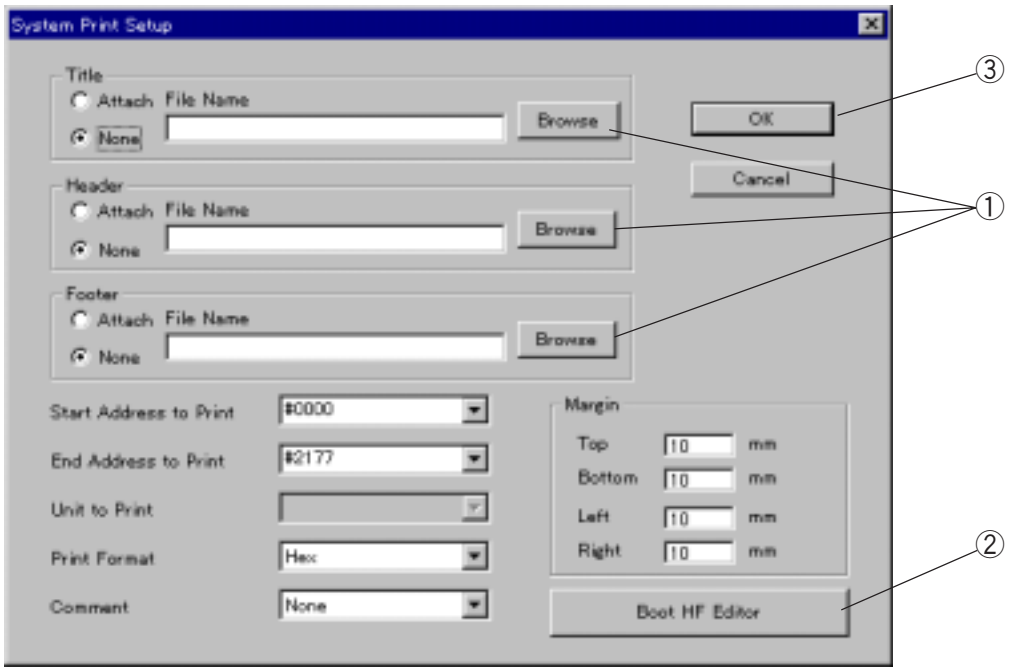
Setup items	Content
Title	If you want to print the title, select "Attach," and if you don't want to print the title, select "None." Assign the file name if you select "Attach." ※
Header	For each page, select "Attach/None" (as explained above) in printing the header. Assign the file name if you select "Attach." ※
Footer	For each page, select "Attach/None" (as explained above) in printing the footer. Assign the file name if you select "Attach." ※
Symbol・Comment	Assign whether you want to add or not add the symbol・comment .
Max. No. of String	Setup the maximum character numbers when you add symbol・comment .The setup area for the symbol is 0 to 16 characters, and for the comment it is 0 to 28 characters.
Max. No. of Columns	Assign the number of columns that are to be printed in one page. If the assigned number of columns can not be printed in a page, it will automatically be printed in the
Margines	Setup spaces of top/bottom/left /right sides.
Boot HF Editor	Start-up "HF Editor" that creates title, header and footer.

※ By clicking [Reference] (number ①) of each item, you can assign the file name by [Select File] dialog box at the title/header/footer. (Same as the pages 9-3 to 4) Also, the file for title/header/footer is created by clicking [Boot HF Editor] (number 2 above) (⇒Refer to "9-2 HF Editor")

If you click [OK] (number 3 above) after setting up each item, the setup content will be registered.

[3] Setup Page of System

If you click [Page Setup] by the [File] menu (page 9-1) of the system, the [System Print Setup] dialog box will be displayed.



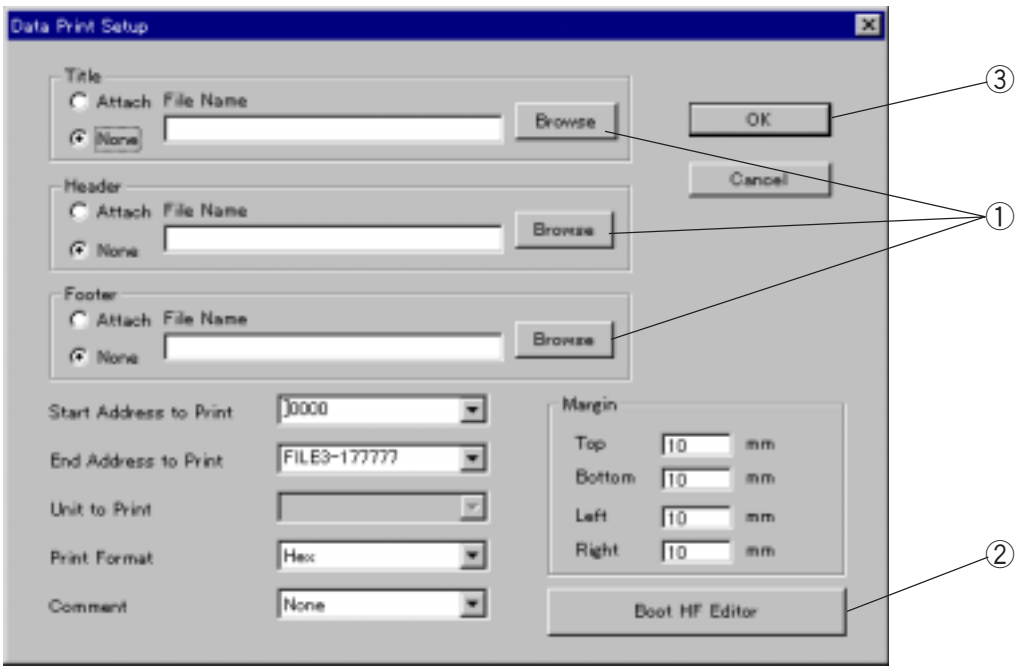
Setup items	Content
Title	If you want to print the title, select "Attach," and if you don't want to print the title, select "None." Assign the file name if you select "Attach." ※
Header	For each page, select "Attach/None" (as explained above) in printing the header. Assign the file name if you select "Attach." ※
Footer	For each page, select "Attach/None" (as explained above) in printing the footer. Assign the file name if you select "Attach." ※
Start address to print	Assign the system memory address that starts the printing. ・It is valid when selecting "None" at comment (described below),or when selecting the "Comment" at comment.
End address to print	Assign the system memory address that quits the printing. ・It is valid when selecting "None" at comment (described below),or when selecting the "Comment" at comment.
Unit to print	Select the unit (byte/word/double word) for printing system memory data. ・It is valid only when selecting the "Comment" at comment (described below).
Print format	Select the type(binary notation/octal notation/decimal notation/hexadecimal notation/ASCII) for printing system memory data.
Comment	Select the "print comment" of the system memory from "None /Comment /Property Sheet." ・If "None" is selected, the area to print in one page enlarges. ・If "Property Sheet" is selected the content of the property sheet will be printed.
Margins	Setup spaces of top/bottom/left/right sides.
Boot HF Editor	Start-up "HF Editor" that creates title, header and footer.

※ By clicking [Reference] (number ①) of each item, you can assign the file name by [Select File] dialog box at the title/header/footer. (Same as the pages 9-3 to 4) Also, the file for title/header/footer is created by clicking [Boot HF Editor] (number 2 above) (⇒Refer to "9-2 HF Editor")

If you click [OK] (number 3 above) after setting up each item, the setup content will be registered.

[4] Setup Page of Data

If you click [Page Setup] by the [File] menu (page 9-1) of data, the [Data Print setup] dialog box will be displayed.



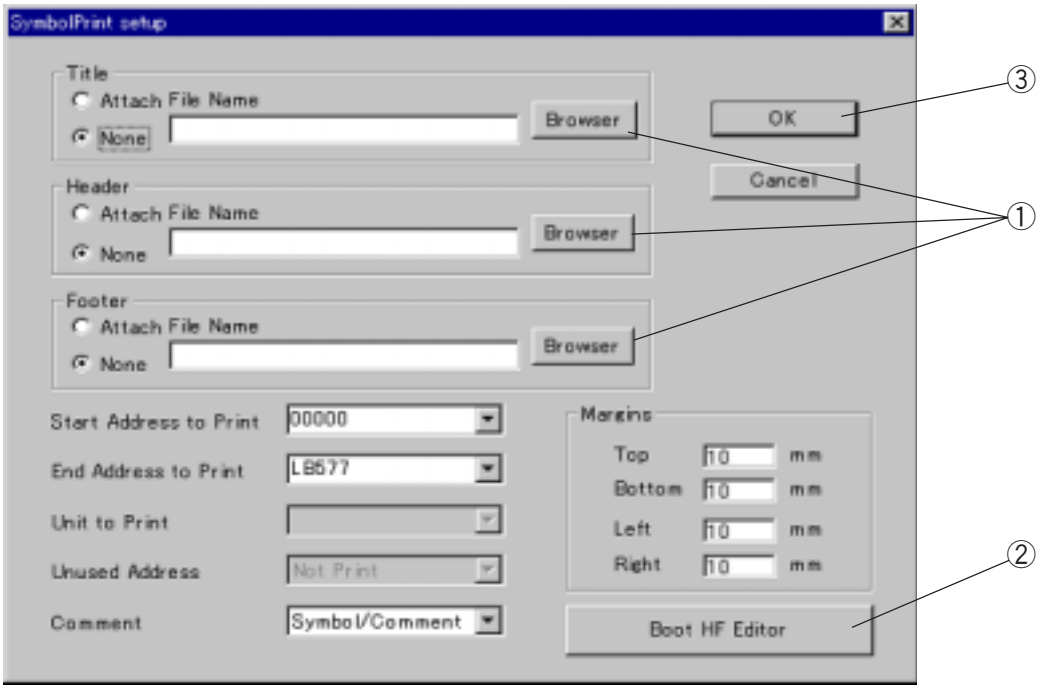
Setup items	Content
Title	If you want to print the title, select "Attach," and if you don't want to print the title, select "None." Assign the file name if you select "Attach." ※
Header	For each page, select "Attach/None" (as explained above) in printing the header. Assign the file name if you select "Attach." ※
Footer	For each page, select "Attach/None" (as explained above) in printing the footer. Assign the file name if you select "Attach." ※
Start address to print	Assign data memory address that starts the printing.
End address to print	Assign data memory address that quits the printing.
Unit to print	Select the unit（byte/word/double word) for printing data of memory data. ・It is valid only when selecting except "None" at comment（described below).
Print format	Select the type(binary notation/octal notation/decimal notation/decimal notation (with +-)/hexadecimal notation/ASCII) for printing data of data memory.
Comment	Select "symbol/comment print" of data memory from "None,Symbol,Comment,Symbol/Comment."
Margins	Setup spaces of top/bottom/left/right sides.
Boot HF Editor	Start-up "HF Editor" that creates title, header and footer.

※ By clicking [Reference] (number ①) of each item, you can assign the file name by [Select File] dialog box at the title/header/footer. (Same as the pages 9-3 to 4) Also, the file for title/header/footer is created by clicking [Boot HF Editor] (number 2 above) (⇒Refer to "9-2 HF Editor")

If you click [OK] (number 3 above) after setting up each item, the setup content will be registered.

[5] Setup Page of Symbol

If you click [Page Setup] by the [File] menu (page 9-1) of symbol, the [Symbol Print Setup] dialog box will be displayed.



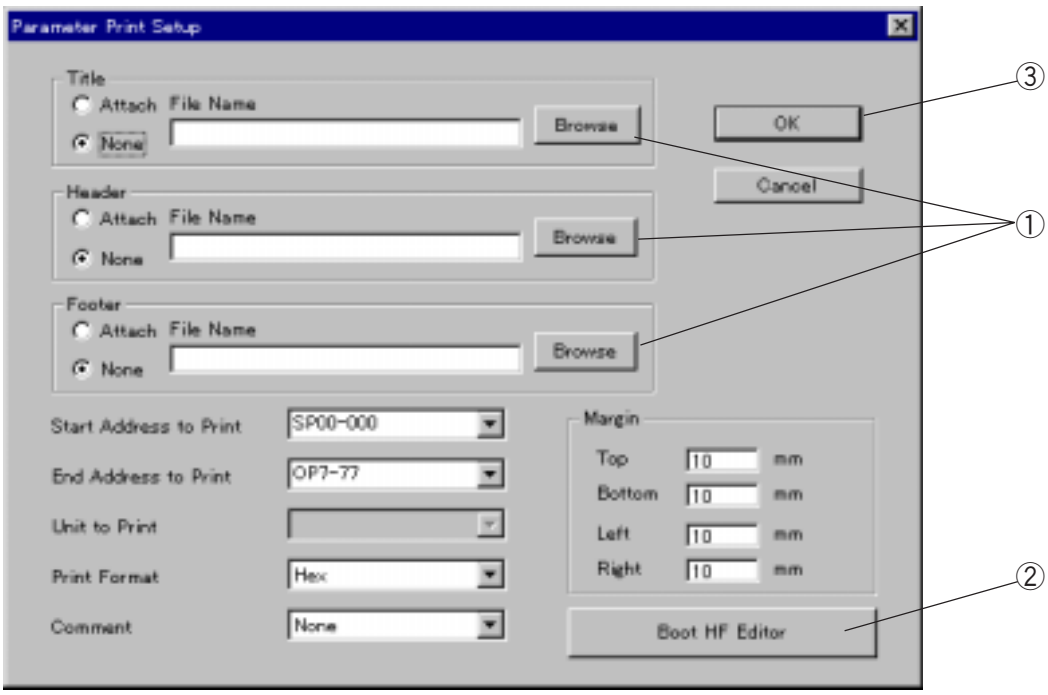
Setup items	Content
Title	If you want to print the title, select "Attach," and if you don't want to print the title, select "None." Assign the file name if you select "Attach." ※
Header	For each page, select "Attach/None" (as explained above) in printing the header. Assign the file name if you select "Attach." ※
Footer	For each page, select "Attach/None" (as explained above) in printing the footer. Assign the file name if you select "Attach." ※
Start address to print	Assign data memory address that starts the printing.
End address to print	Assign data memory address that quits the printing.
Unit to print	You cannot set up this item. (The unit is always byte.)
Unused Address	You cannot set up this item. (Only the address that symbol/comment is registered is printed.)
Comment	Select the printing of the symbol/comment from "Symbol/Comment, Symbol, Comment."
Margins	Setup spaces of top/bottom/left/right sides.
Boot HF Editor	Start-up "HF Editor" that creates title, header and footer.

※ By clicking [Reference] (number ①) of each item, you can assign the file name by [Select File] dialog box at the title/header/footer. (Same as the pages 9-3 to 4) Also, the file for title/header/footer is created by clicking [Boot HF Editor] (number 2 above) (⇒Refer to "9-2 HF Editor")

If you click [OK] (number 3 above) after setting up each item, the setup content will be registered.

[6] Setup Page of Parameter

If you click [Page Setup] by the [File] menu (page 9-1) of the parameter , the [Parameter Print Setup] dialog box will be displayed.



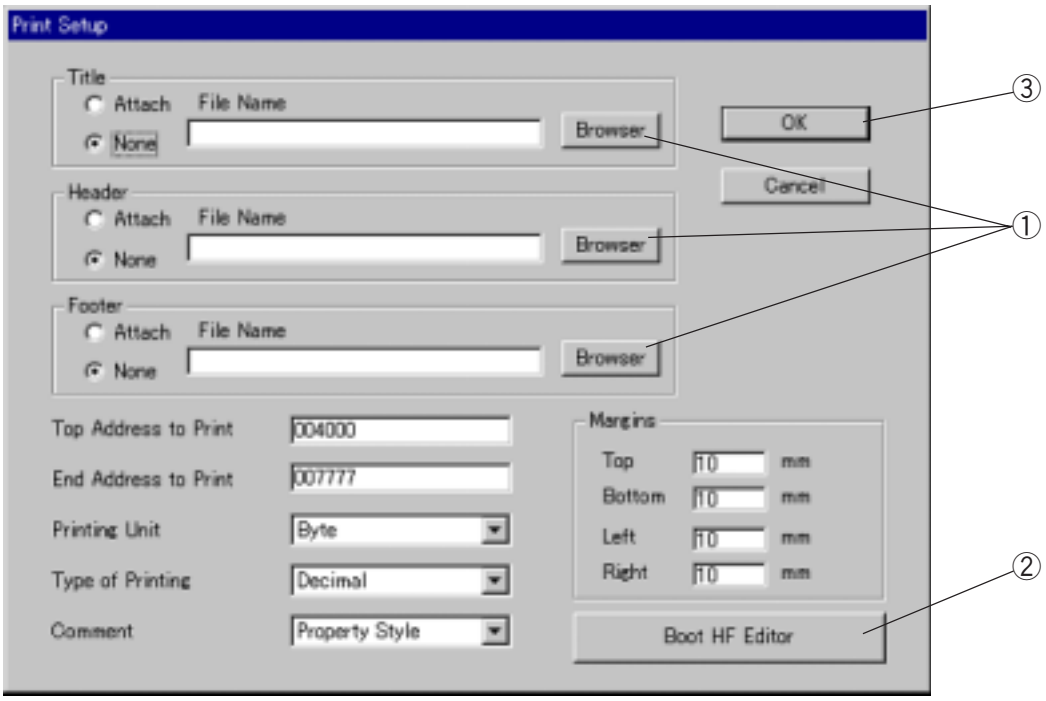
Setup items	Content
Title	If you want to print the title, select "Attach," and if you don't want to print the title, select "None." Assign the file name if you select "Attach." ※
Header	For each page, select"Attach/None" (as explained above) in printing the header. Assign the file name if you select "Attach." ※
Footer	For each page, select "Attach/None" (as explained above) in printing the footer. Assign the file name if you select "Attach." ※
Start address to print	Assign parameter memory address that starts the printing.
End address to print	Assign parameter memory address that quits the printing.
Unit to print	The setup of this item is not possible.
Print format	Select the type(binary notation/octal notation/decimal notation/decimal notation (with +-)/hexadecimal notation/ASCII) for printing data of parameter memory.
Comment	Select from "None/Property Sheet." ・If the property sheet is selected, the content of the property sheet will be printed.
Space	Setup spaces of top/bottom/left/right sides.
Boot HF Editor	Start-up "HF Editor" that creates title, header and footer.

※ By clicking [Reference] (number ①) of each item, you can assign the file name by [Select File] dialog box at the title/header/footer. (Same as the pages 9-3 to 4) Also, the file for title/header/footer is created by clicking [Boot HF Editor] (number 2 above) (⇒Refer to "9-2 HF Editor")

If you click [OK] (number 3 above) after setting up each item, the setup content will be registered.

[7] Setup Page of Option Parameter

If you click [Page Setup] in the [File] menu (page 9-1) of the option parameter, the [Print Setup] dialog box will be displayed.



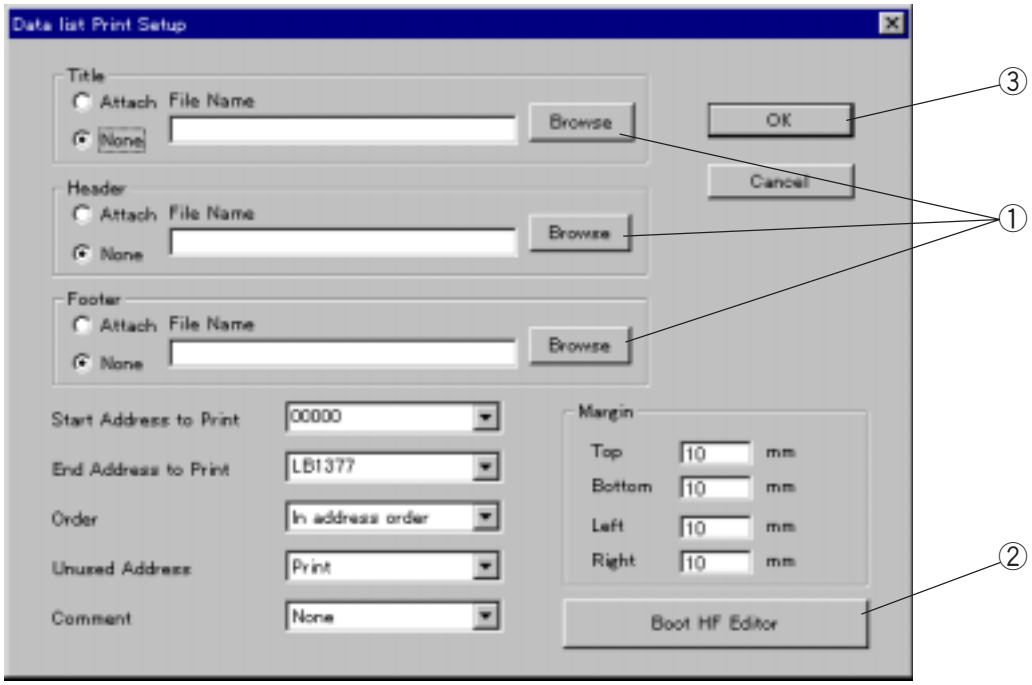
Setup items	Content
Title	If you want to print the title, select "Attach," and if you don't want to print the title, select "None." Assign the file name if you select "Attach." ※
Header	For each page, select "Attach/None" (as explained above) in printing the header. Assign the file name if you select "Attach." ※
Footer	For each page, select "Attach/None" (as explained above) in printing the footer. Assign the file name if you select "Attach." ※
Start address to print	Assign the address of option parameter memory that starts the printing.
End address to print	Assign the address of option parameter memory that quits the printing.
Unit to print	Select the module (byte/ word/ double word) for printing data of option parameter memory.
Print format	Select the type (binary notation/octal notation/decimal notation/decimal notation (with +-)/hexadecimal notation/ASCII) for printing data of option parameter.
Comment	Select from "None/Property Sheet." ・If the property sheet is selected, the content of the property sheet will be printed.
Space	Setup spaces of top/bottom/left/right sides.
Boot HF Editor	Start-up "HF Editor" that creates title, header and footer.

※ By clicking [Reference] (number ①) of each item, you can assign the file name by [Select File] dialog box at the title/header/footer. (Same as the pages 9-3 to 4) Also, the file for title/header/footer is created by clicking [Boot HF Editor] (number 2 above) (⇒Refer to "9-2 HF Editor")

If you click [OK] (number 3 above) after setting up each item, the setup content will be registered.

[8] Setup Page of Data List

If you click [Page Setup] by the [File] menu (page 9-1) of data list, the [Dat List Print Setup] dialog box will be displayed.



Setup items	Content
Title	If you want to print the title, select "Attach," and if you don't want to print the title, select "None." Assign the file name if you select "Attach." ※
Header	For each page, select "Attach/None" (as explained above) in printing the header. Assign the file name if you select "Attach." ※
Footer	For each page, select "Attach/None" (as explained above) in printing the footer. Assign the file name if you select "Attach." ※
Start address to print	Assign data memory address that starts the printing.
End address to print	Assign data memory address that quits the printing.
Order	Assign the order of the printing. You only can select "In address order."
Unused Address	Select either "Print/Not Print" of the address which has not setup symbol･comment.
Comment	Select the printing of the symbol･comment from "Symbol/comment,symbol, comment."
Margins	Setup spaces of top/bottom/left/right sides.
Boot HF Editor	Start-up "HF Editor" that creates title, header and footer.

※ By clicking [Reference] (number ①) of each item, you can assign the file name by [Select File] dialog box at the title/header/footer. (Same as the pages 9-3 to 4) Also, the file for title/header/footer is created by clicking [Boot HF Editor] (number 2 above) (⇒Refer to "9-2 HF Editor")

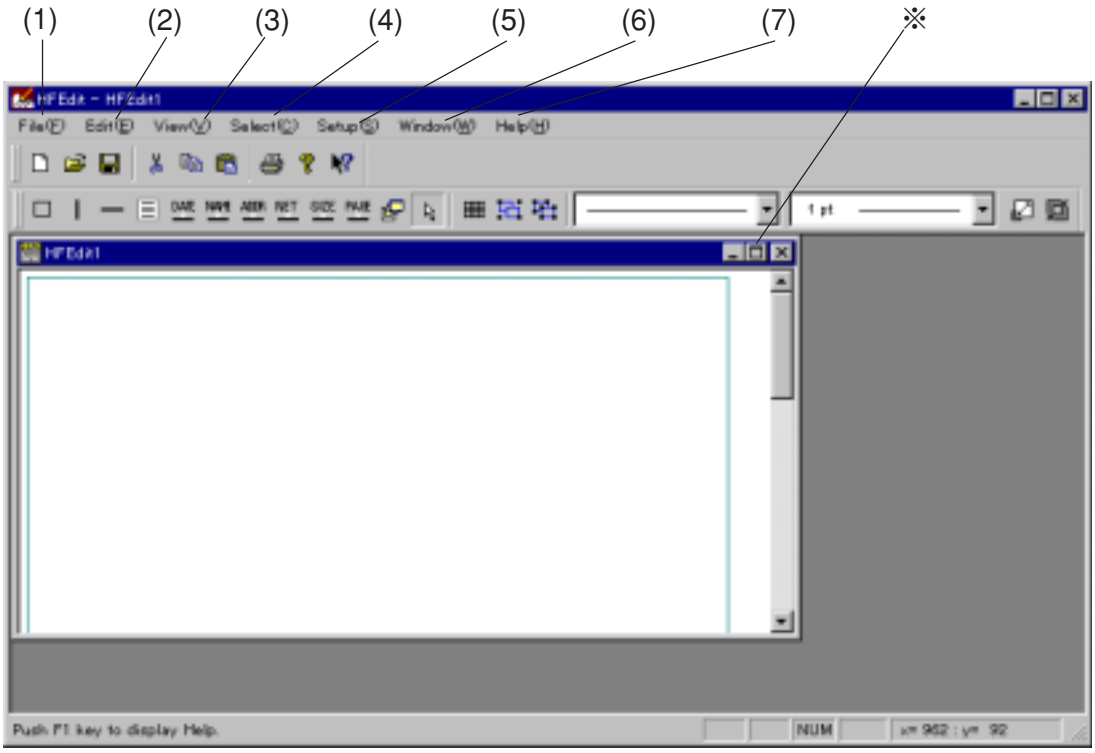
If you click [OK] (number 3 above) after setting up each item, the setup content will be registered.

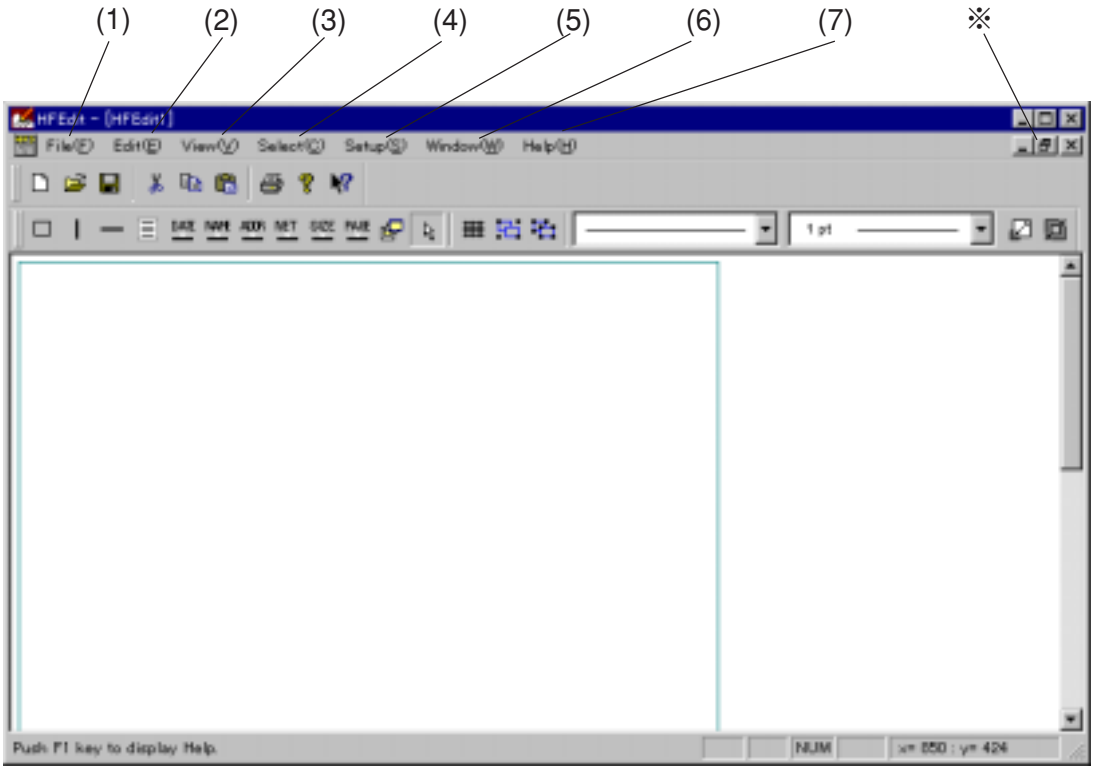
9-2 HF Editor (Program/System/Data/Symbol/Parameter/Other Parameters)

"HF Editor," that edits title/header/footer which are used at the time of printing at the page setup ([File] menu) of each window, is explained.

If you click [Boot HF Editor] by the "setup page dialog box"(pages 9-3 to 11), the [HF Edit] window will be displayed.

● **[HF Edit] window**

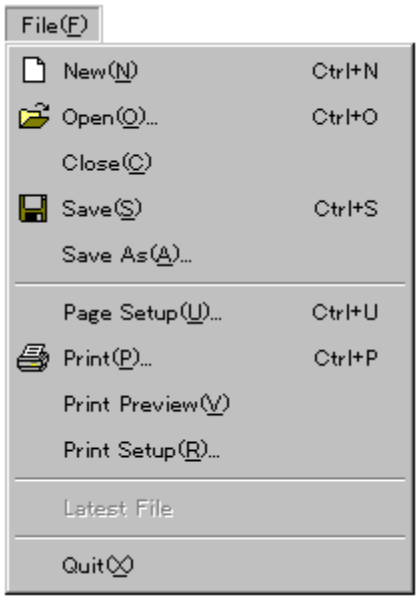


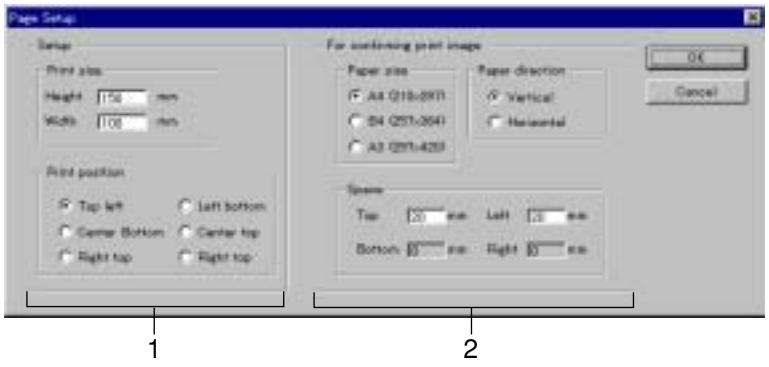


・The numbers (1) to (7) are compatible to items that are after this page.

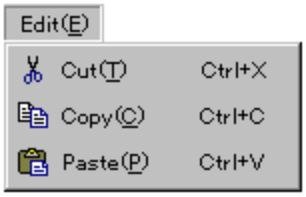
・If you click ※ part, the screen above will change.

(1) [File] menu



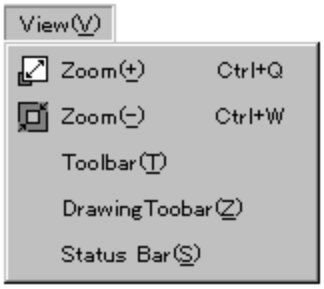
Item	Content
New	Create a new file.
Open	Open the existing file. ・The file extension of the HF Editor is "HFD."
Save	Save the operating file. ・Save without modifying the name /saved place.
Save As	Save the operating file with a new name. ・If it was saved without the extension, the "HFD" extension will automatically be added. ・You can save by modifying the name /saved place.
Page Setup	Setup the format of the page for printing by the [Page Setup] dialog box.  1 2 ・By the setup "1", the print size/print position for JW-100SP printing will be set. ・The setup "2" is useful when you want to confirm the printing image by the HF Editor. Setting up the JW-100SP is useful for the margin/paper size of the created title /header/footer by JW-100SP.
Print	Print the content of the active window. ・The [Print] dialog box will be displayed. If you click [OK], the printing starts.
Print Preview	Display the active file as if printing on the screen.
Printer Setup	Setup the selection /connection of the printer.
Quit	Quit HF Editor.

(2) [Edit] menu

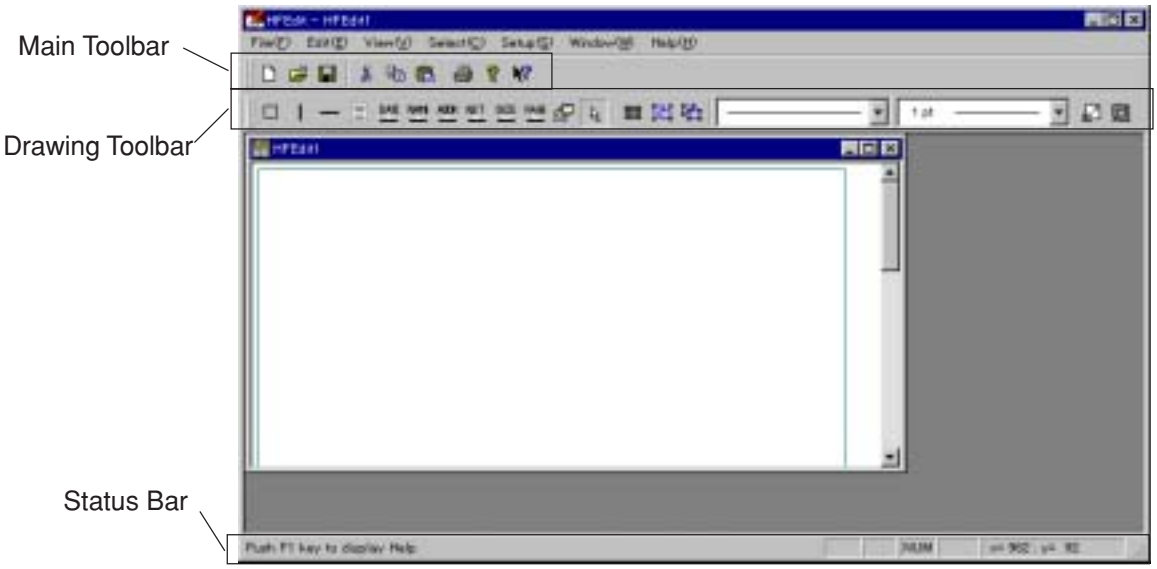


Item	Content
Cut	Cut the selected area and saves it.
Copy	Copy the selected area and saves it.
Paste	Paste the saved data.

(3) [View] menu



Item	Content
Zoom (+)	Enlarge the display.
Zoom (−)	Contract the display.
Toolbar	Select "yes /no" of the display of the main toolbar.
Drawing Toolbar	Select "yes /no" of the display of the drawing toolbar.
Status Bar	Select "yes /no" of the display of the status bar. ・At the status bar, when you select the button of the menu command /toolbar, a simple explanation of commands and the ON/OFF condition of special keys of the keyboard are displayed.



The function of each button of the main toolbar and the drawing toolbar is the same as the function of the menu bar (File, Edit, View, Select, Help).

(4) [Select] menu

[Assign font]

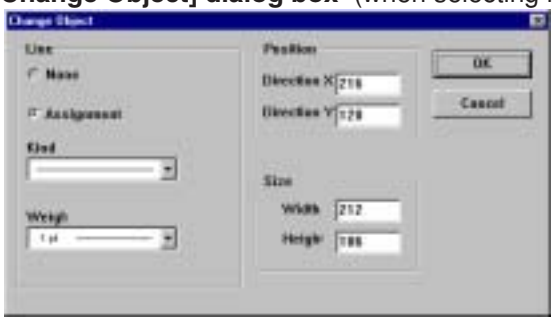
Assign the character font such as the character line, date and model name in the text box at the [Font] dialog box which is displayed by double clicking inside each box (quadrangle).
Here, you can assign the font name, style, and size.

Item	content
Horizontal Line	If you drag the mouse after clicking the [Horizontal Line], the horizontal line will be drawn.
Vertical Line	If you drag the mouse after clicking the [Vertical Line], the vertical line will be drawn.
Box	If you drag the mouse after clicking the [Box], the quadrangle will be drawn.
Text	If you drag the mouse after clicking the [Text], the quadrangle which permits the input of character line will be displayed.
Date	If you drag the mouse after clicking the [Date], the quadrangle that displays the date will be displayed.
Model Name	If you drag the mouse after clicking the [Model Name], the quadrangle that displays the model name will be drawn. At the editor screen, it is displayed as the "Model," but at the printing, the setup model name will be printed.
Address	If you drag the mouse after clicking the [Address], the quadrangle that displays the address will be drawn. At the editor screen, it is displayed as the "Address," but at the printing, the front program address of the same page will be printed.
Network No.	If you drag the mouse after clicking the [Network No.], the quadrangle that displays the network (circuit) number will be drawn. At the editor screen, it is displayed as the "Network No.," but at the printing, the network number of the same page will be printed.
Memory Capacity	If you drag the mouse after clicking the [Memory Capacity], the quadrangle that displays the memory volume will be drawn. At the editor screen, it is displayed as the "Memory Size," but at the printing, the setup memory capacity will be printed.
Page No.	If you drag the mouse after clicking the [Page No.], the quadrangle that displays the page number will be drawn. At the editor screen, it is displayed as the "Page No.," but at the printing, the number of the same page will be printed.
Grid	Display/Not display the grid. You can setup the space between the grids by the [Grid Size] of the [Setup] menu.
Grouping	Group several selected drawings. ・If you [Grouping] after selecting several drawings, it becomes on group. You can select several drawings by clicking the mouse while keep pressing the [Shift] key.
Reset Grouping	Return to the previous state of the "Grouping" drawings.
Select	Change the drawing- mode mouse to the drawing-select- mode mouse.
Change Object	If you click [Change Object] after selecting the object (vertical line /date described above, for example), [Change Object] or [Object Property] dialog box will be displayed, and you can modify the attribute of the object. ⇒ Refer to the next page.

[Change Object]

If you click [Change Object] of the [Select] menu after selecting the object(vertical line /date, for example), the dialog box displayed below will be displayed, and the attribute of the object can be modified.

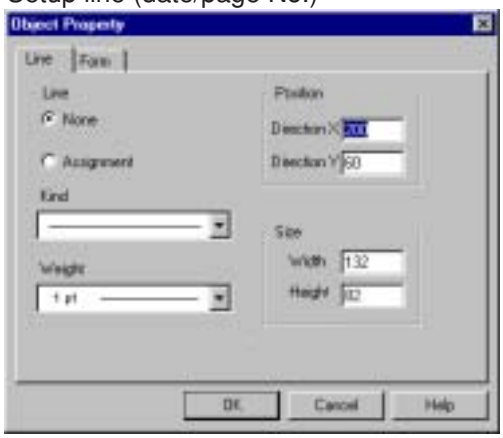
●**[Change Object] dialog box** (when selecting horizontal line/vertical line/box/text/model name/address/network No./memory capacity)



Item	Content
Line	Assign yes /no (outer line) of the line, kind, and weigh.
Position	Assign the position (X/Ydirection) of the drawing.
Size	Assign the size (width/heigh) of the drawing.

● **[Object Property] dialog box (**date/when selecting the page No.)

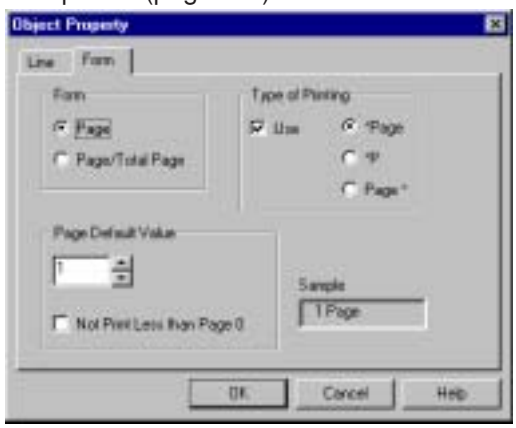
・Setup line (date/page No.)



・The setup content is same as the [Change Object] the dialog box (described above).

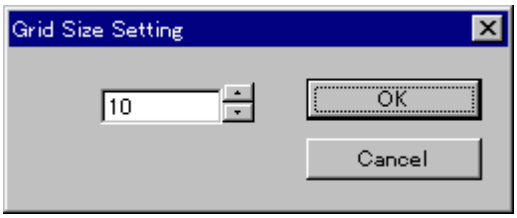
・Setup form (date)

・Setup form (page No.)



Item		Content
Date	Year to day of week	Print yes/no of the year, month, day, week, and setup each form.
	Type of Printing	Setup the type of the whole date printing .
Page number	Form	Setup the form of "print page. ("only the page number" or "add total page number")
	Type of Printing	Add the assigned character to the page number, and print it. The actual printing image will be displayed as the "Sample."
	Page Default Value	Setup the default value of the page number from the first page. Also, if you are printing the title by JW-100SP, the printing starts from the second page with this setup. If you select "ON" of the check box, "Not Print Less than Page 0," the page number will not be printed when the page number is less than 0.

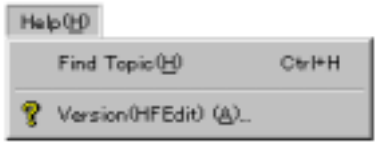
(5) [Setup] menu

Item	Content
Grid Size	Setup the space between the grids by 0.1 mm module. ・The setup is executed at the [Grid Size Setting] dialog box which is displayed by clicking [Grid Size]. 

(6) [Window] menu

Item	Content
Overlap Display	Display several windows in pile.
Cascade Display	Display several windows in line.
Arrange Icons	Arrange windows that are iconized at the below part of the [HF Edit] window.
Window Name 1, 2 ・・	The list of the open window will be displayed. Also, a check mark besides the currently active window name will be displayed. Select (click) the window to activate.

(7) [Help] menu



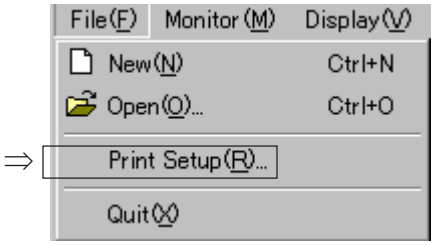
Item	Content
Find Topic	The "help" screen for the HF Editor (Contents/Index) will be displayed. ・If you keep clicking (assigning) the item to find, you can refer to the related help information such as "operation order/ reference of HF Editor." ・To go back to the original screen after referring to the help content, click [Contents] of the help window.
Version Data (HF Edit)	Display the version information of the "HF Editor."

9-3 Print Setup (Main/Program/System/Data/Symbol/Parameter/Option Parameter/Data List/Sampling Trace)

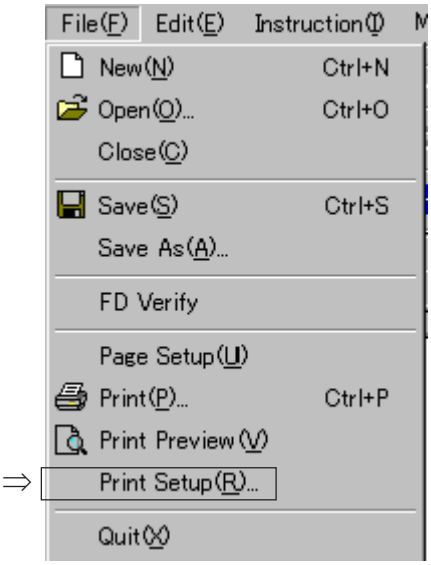
Setup selection/connection of the printer.

If you click [Printer Setup] of each [File] menu, the [Printer Setup] dialog box will be displayed.

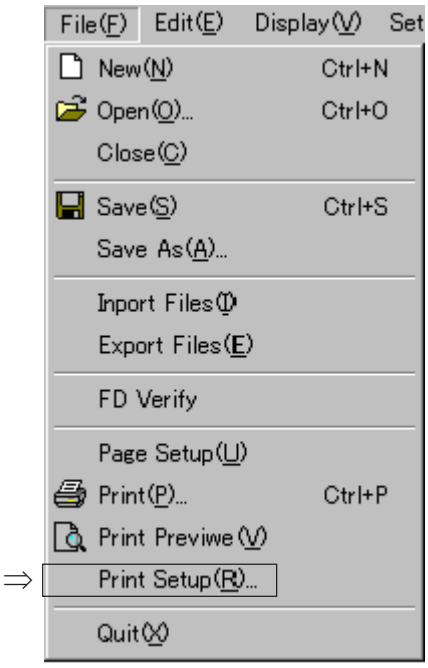
・Main



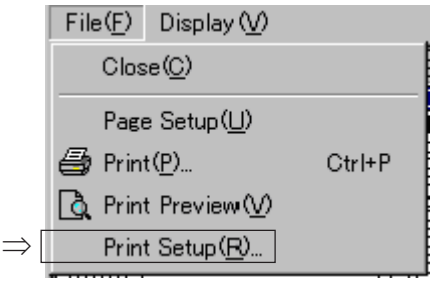
・Program/System/Parameter



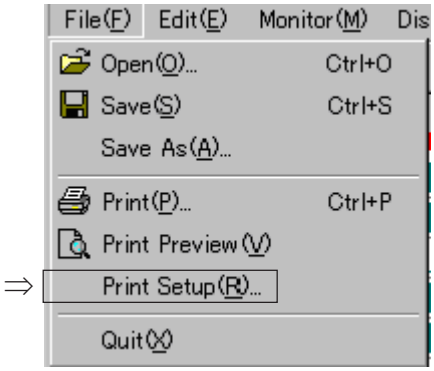
・Data/Symbol



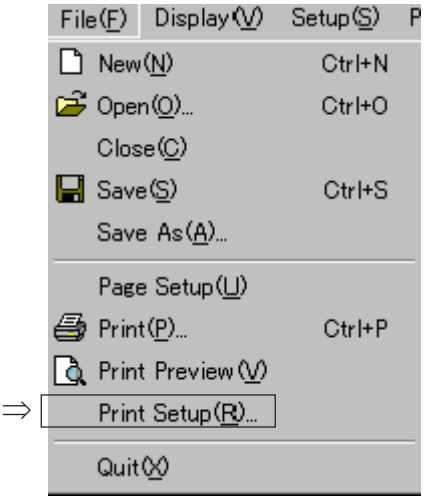
・Data List



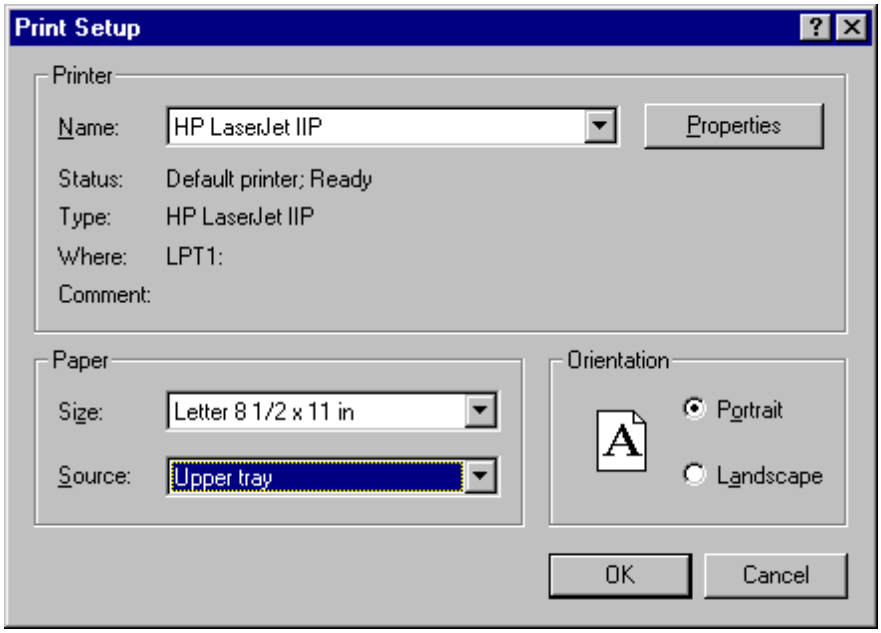
・Sampling Trace



・Option Parameter



● **[Print Setup] dialog box**



(Display example)

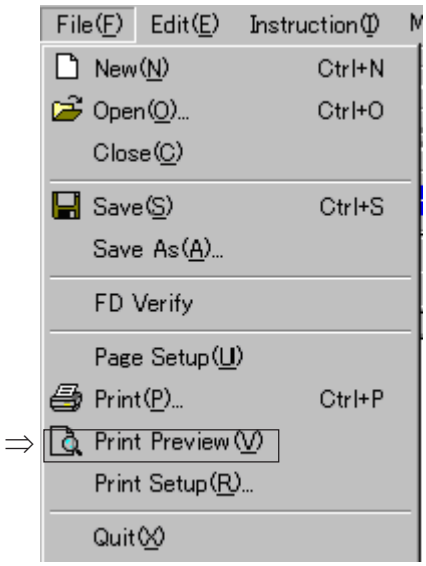
Setup item	Content
Printer	Select the printer from the list of selection box.
Paper	Select the paper size and the paper-supplying method from the list of selection box.
Orientation	Setup either portrait or land scape.

・If you click [OK] after setting up each item, the setup content will be registered.

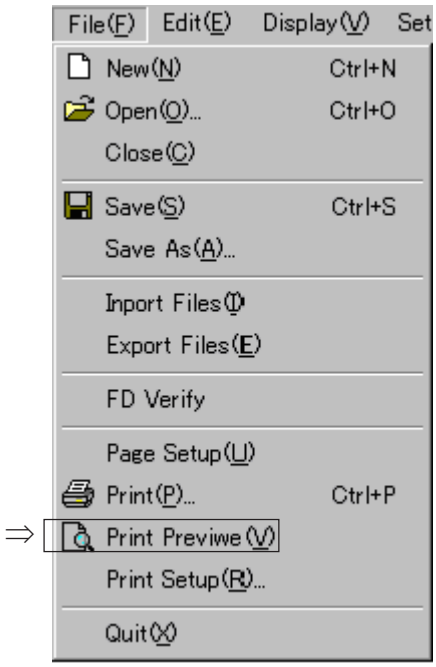
9-4 Print Preview (Program/System/Data/Symbol/Parameter/Option Parameter/Data List/ Sampling Trace)

Display the active window as if printing.
If you click [Print Preview] of each [File] menu, the [Print Preview] window will be displayed.

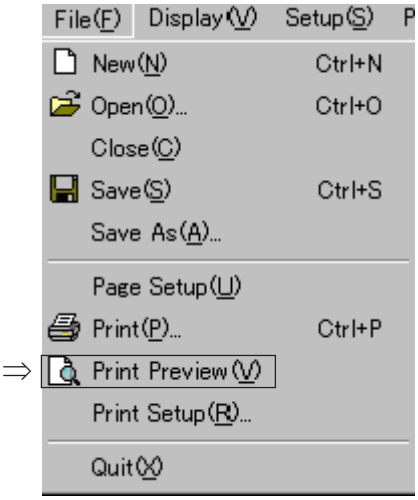
・Program/System/Parameter



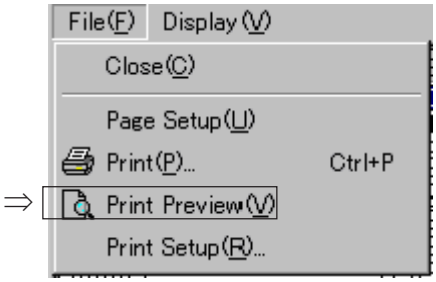
・Data/Symbol



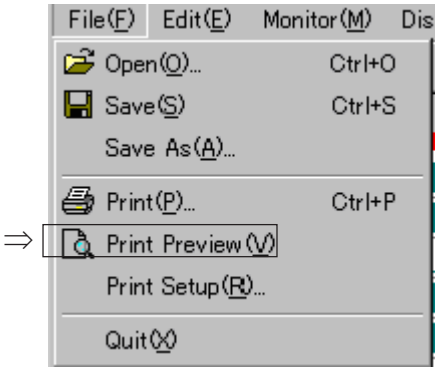
・Option Parameter



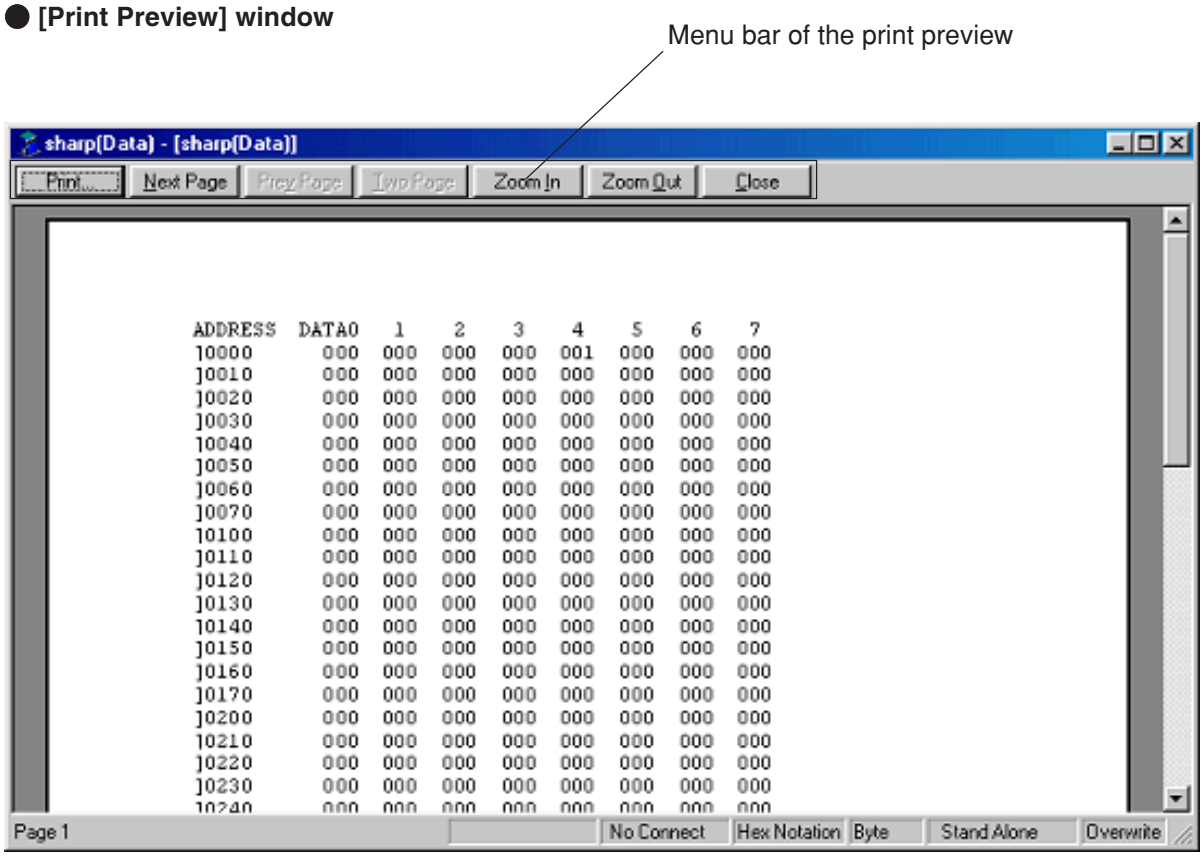
・Data List



・Sampling Trace



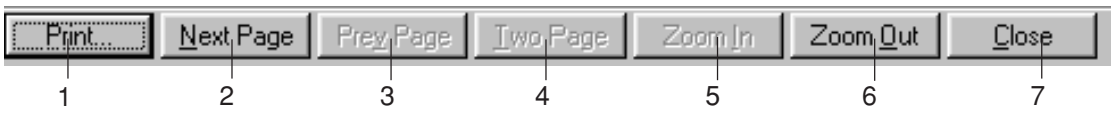
● **[Print Preview] window**



(Display example of data)

・At the [Print Preview] window, there are options such as "move between pages", "enlarge / contract display," and every printing operations.
⇒ Refer to the next page.

● **Menu bar of print preview**

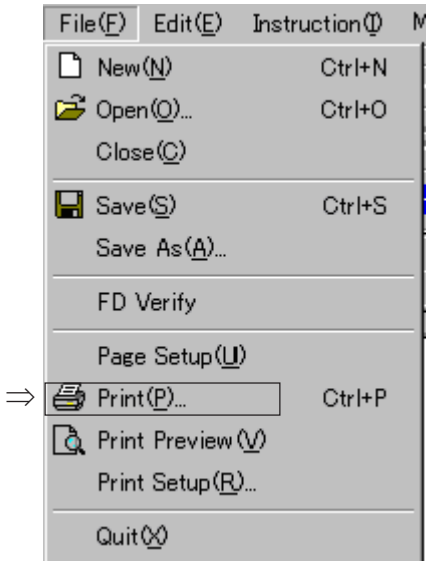


Operation item	Content
Enlarge/contract display	If you click [Zoom In](5), the preview image is shown large; if you click [Zoom Out](6), the preview image is shown small.
Move between pages	If you open the [Print Preview] window, the operating view or the table will be displayed. To display the page after the displaying page, click [Next Page] (2). To display the page before the displaying page, click [Prev Page] (3).
1 page display / 2 page display	If you open the [Print Preview] window, the printing image of the 1 page will be displayed normally. To display the 2 page, click [Two Page] (4). To change from the 2 page display to the 1 page display, click [One page]. [One page] is displayed when the 2 page is being displayed.
Print	If you click [Print], the [Print] dialog box will be displayed, and if you click [OK], it starts printing.
Close	If you click [Close] (7), the [Print Preview] window will be closed.

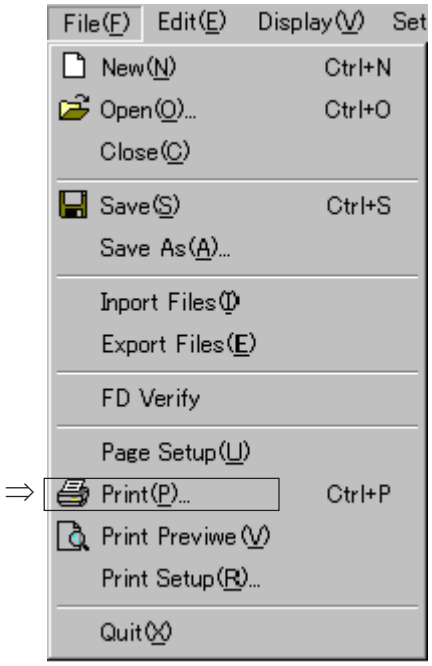
9-5 Print (Program/System/Data/Symbol/Parameter/Option Parameter/Data List /Sampling Trace)

Print the content of the active window which was formatted by the setup (page 9-3 and after) at the [Page Setup] of the [File] menu.
If you click [Print] of each [File] menu, the [Print] dialog box will be displayed.

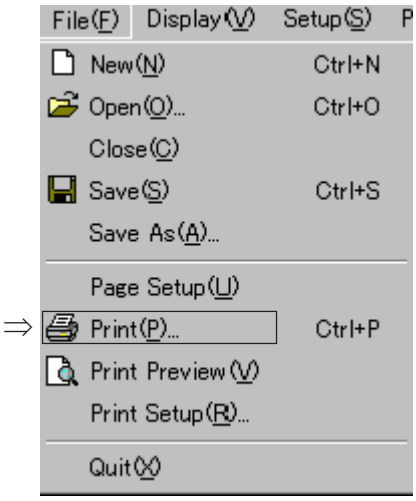
・Program/System/Parameter



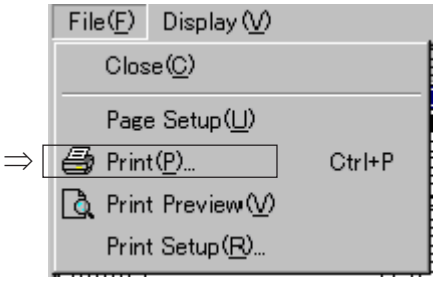
・Data/Symbol



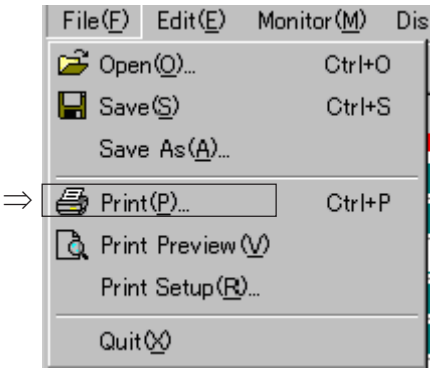
・Option Parameter



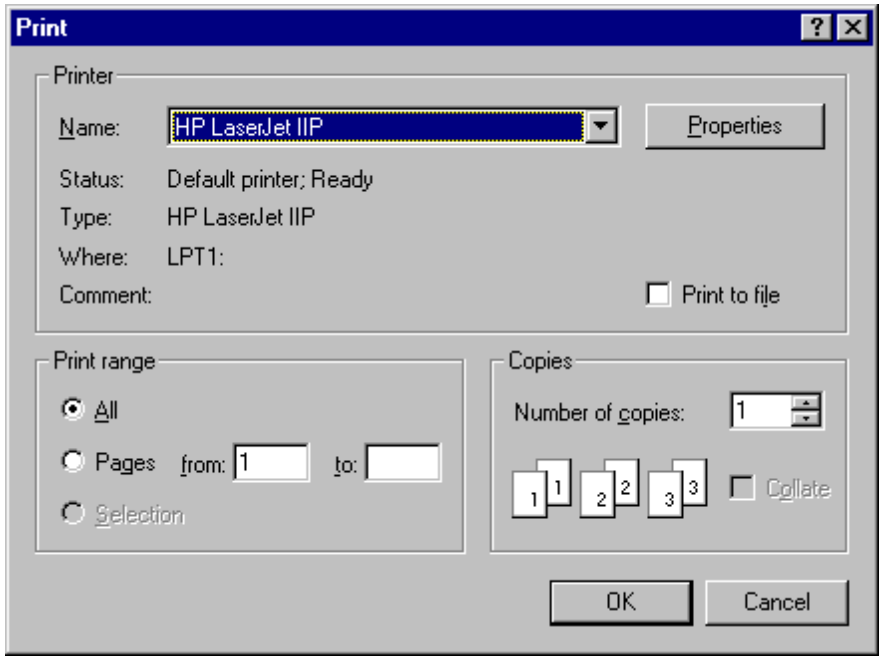
・Data List



・Sampling Trace



● **[Print] dialog box**



(Display example)

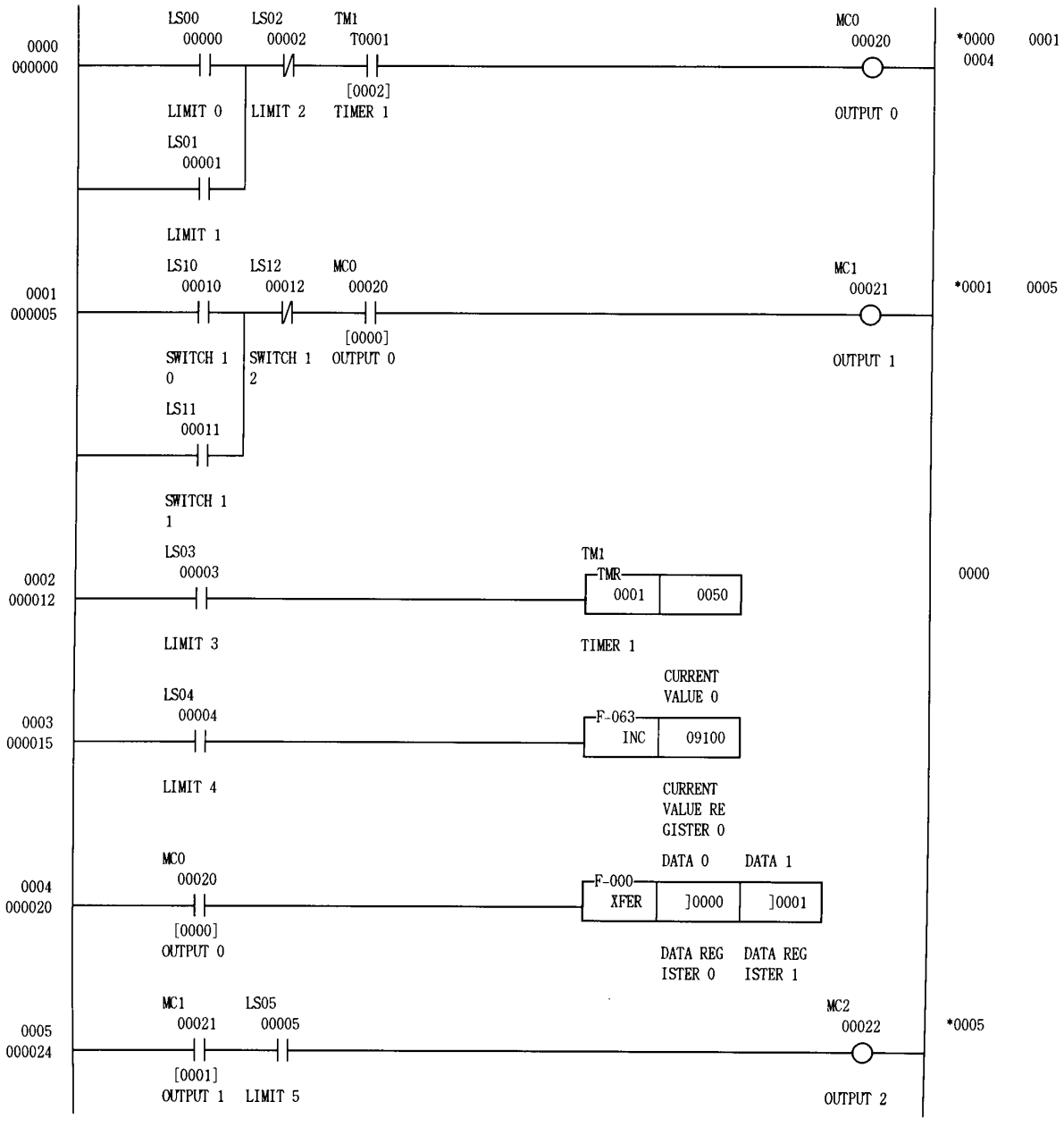
・If you click [OK] after setting up the printer (Properties)/Print range/Number of Copies, the starts the printing.

The printing examples of program : ladder, program : mnemonic, data, sampling trace are described below.

(1) Printing example of program : ladder

Header : Attach (Printing Position : Top Left), Coil : Symbol/Comment (Comment Position : BOTTOM),Contact : Symbol/Comment, Cross Reference : Attach, Program Address : Attach

Model Name	JW-33CUH1	Start Address	000000
Memory Capacity	31.5Kw	Start Network No.	0000
Date	1998/10/26	Page No.	1 Page
Name	Line A		



(2) Printing example of program : mnemonic

[Header : Attach (Printing Position : Top Left), Symbol : Attach, Comment : Attach]

Model Name	JW-33CUH1	Start Address	000000
Memory Capacity	31.5Kw	Start Network No.	0000
Date	1998/10/26	Page No.	1 Page
Name	Line A		

000000	STR	00000	LS00	LIMIT 0
000001	OR	00001	LS01	LIMIT 1
000002	AND NOT	00002	LS02	LIMIT 2
000003	AND	T0001	TM1	TIMER 1
000004	OUT	00020	MC0	OUTPUT 0
000005	STR	00010	LS10	SWITCH 10
000006	OR	00011	LS11	SWITCH 11
000007	AND NOT	00012	LS12	SWITCH 12
000010	AND	00020	MC0	OUTPUT 0
000011	OUT	00021	MC1	OUTPUT 1
000012	STR	00003	LS03	LIMIT 3
000013	TMR	0001	TM1	TIMER 1
000014		0050		
000015	STR	00004	LS04	LIMIT 4
000016	F-063	INC		
000017		09100	CURRENT VALUE 0	CURRENT VALUE REGISTER 0
000020	STR	00020	MC0	OUTPUT 0
000021	F-000	XFER		
000022		]0000	DATA 0	DATA REGISTER 0
000023		]0001	DATA 1	DATA REGISTER 1
000024	STR	00021	MC1	OUTPUT 1
000025	AND	00005	LS05	LIMIT 5
000026	OUT	00022	MC2	OUTPUT 2

(3) Printing example of data

[Unit to print : Byte, Print format : Hex, Symbol/Comment : None]

Address	Data0	1	2	3	4	5	6	7
]0000	33	41	52	28	75	95	28	35
]0010	79	48	69	58	29	50	38	20
]0020	18	31	37	17	67	61	26	49
]0030	55	38	88	48	71	29	74	58
]0040	73	93	58	48	35	97	22	59
]0050	88	47	33	69	83	30	59	29

[Unit to print : Byte, Print format : Binary, Symbol/Comment : None]

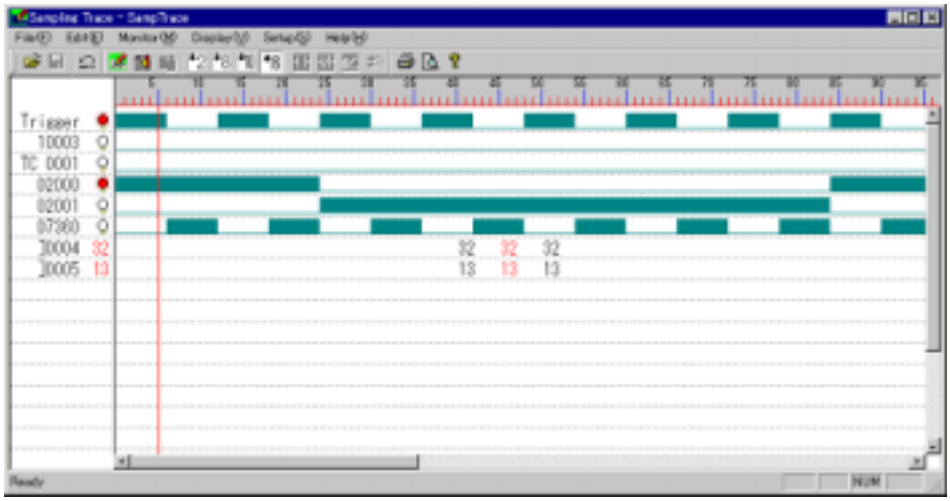
Address	Data0	1	2	3	4	5	6	7
]0000	00110011	01000001	01010010	00101000	01110101	10010101	00101000	00110101
]0010	01111001	01001000	01101001	01011000	00101001	01010000	00111000	00100000
]0020	00011000	00110001	00110111	00010111	01100111	01100001	00100110	01001001
]0030	01010101	00111000	10001000	01001000	01110001	00101001	01110100	01011000
]0040	01110011	10010011	01011000	01001000	00110101	10010111	00100010	01011001
]0050	10001000	01000111	00110011	01101001	10000011	00110000	01011001	00101001

[Unit to print : Byte, Print format : Hex, Symbol/Comment : Attach]

Address	Data	Symbol	Comment
]0000	33	DATA 0	DATA REGISTER 0
]0001	41	DATA 1	DATA REGISTER 1
]0002	52	DATA 2	DATA REGISTER 2
]0003	28	DATA 3	DATA REGISTER 3
]0004	75	DATA 4	DATA REGISTER 4
]0005	95	DATA 5	DATA REGISTER 5

(4) Printing example of sampling trace

(Screen display)



Trigger Mode: Start when the condition is satisfied, Trace Memory File F: 2KB,
Sampling Frequency: Every Scanning, Zoom: 100%, Display in Hex Notation, Cursol Position: 123

```
Trigger Mode : Start at condition is satisfied     Trace Memory File F: 2kb     Sampling Times :   256
Zoom :  8/ 1     Display : 16 number     Cursol Position :    97

             89                                                  104                                                  119
Trigger      *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *
    04000    *  _  *  _  *  _  *  _  *  _  *  _  *  _  *  _  *  _  *  _  *  _  *  _  *  _  *  _  *  _  *  _  *
    07360    *  *  *  *  *  *  *  *  *  _  _  _  _  _  _  _  _  _  _  _  _  _  _  _  _  _  _  _  _  _  _  _
    07364    _  _  _  _  _  _  _  _  _  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *
    09000   F6 F6 F7 F7 F8 F8 F9 F9 FA FA FB FB FC FC FD FD FE FE FF FF 00 00 01 01 02 02 03 03 04
    19000   0A 0A 09 09 08 08 07 07 06 06 05 05 04 04 03 03 02 02 01 01 00 00 FF FF FE FE FD FD FC
    ]1000   62 62 63 63 64 64 65 65 66 66 67 67 68 68 69 69 70 70 71 71 72 72 73 73 74 74 75 75 76
    ]1002   38 38 37 37 36 36 35 35 34 34 33 33 32 32 31 31 30 30 29 29 28 28 27 27 26 26 25 25 24
```

SHARP

SHARP MANUFACTURING SYSTEMS CORPORATION

♦Information about Sharp programmable controller is available at our internet homepage **http://sharp-world.com/sms/**

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